Jacek Gorczyca

A systematic study on Cylapinae with a revision of the Afrotropical Region (Heteroptera, Miridae)

Wydawnictwo Uniwersytetu Śląskiego Katowice 2000

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Abstract

A new systematic understanding of Cylapinae is proposed, the phylogenetical analysis within the subfamily is presented, the new tribe Rhinomirini and the new subtribe Phylocylapina are established, the key to all the tribes and the check-list of world genera are also provided. The subfamily Cylapinae of Africa is revised including all known taxa that occur in Africa, Madagascar and the Seychelles. Twelve genera, 62 species and one subspecies are discussed in detail. The keys to all the Afrotropical genera and species are provided. Three new genera: *Afrofulvius*, *Afrobothriomiris*, and *Phyllofulvioides* are established, 30 new species and one subspecies are described. A representative of the tribe Bothriomirini from Africa is reported for the first time; it is also the first locality of this tribe outside the Oriental Region and Papua New Guinea.

The lectotypes for the following species are designated: *Cylapomorpha migratoria* (Distant), *Fulvius discifer* Reuter, *Fulvius anthocoroides* (Reuter) and *Rhinofulvius albifrons* (Reuter).

Illustrations of dorsal habitus and male genitalia are presented for the representatives of most genera.

Key words: taxonomy, entomology, Heteroptera, Miridae, Cylapinae, Afrotropical Region, revision

Introduction

Our knowledge of the occurrence, biology and distribution of the subfamily Cylapinae (Heteroptera, Miridae) is very poor, as is our understanding of the systematic relationships within the subfamily.

Cylapinae are traditionally divided into three tribes: Bothriomirini, Cylapini and Fulviini (CARVALHO, 1957), but in fact a phylogenetic analysis of the subfamily has never been presented. Moreover, it is now clear that at least the last two groups are not monophyletic (SCHUH, 1995; SCHUH & SLATER, 1995).

What remains particularly obscure is the occurrence and distribution of the members of this subfamily in the Afrotropical Region. The only monographic treatment of this subfamily was given in the paper of POPPIUS (1912). Prior to this date only localities of particular species and new descriptions were presented by REUTER (1895, 1907) and POPPIUS (1909). Later publications of DISTANT (1913), CARVALHO (1952a), CARVALHO et al. (1960), ODHIAMBO (1967), SCHMITZ (1970), LINNAVUORI (1975, 1994), LINNAVUORI & AL-SAFADI (1993), GORCZYCA (1996a, b, 1997a, c, 1998b, c, e, 1999a) and GORCZYCA & CHÉROT (1998) added only a few more data on Cylapinae of this area. For instance, in the series South African Animal Life in the issue on Miridae (CARVALHO et al., 1960) only one representative of the subfamily Cylapinae is mentioned.

After the genera *Afrovannius* Gorczyca, *Paracylapus* Carvalho and *Seychellesius* Carvalho were excluded from the subfamily Cylapinae (GORCZYCA, 1997b, 1998d), only 28 species representing 9 genera are known from Africa, Madagascar, Socotra and the Seychelle Islands. There is still no information about Cylapinae of the Comores Islands and the Mascarene Islands.

The main aim of this paper is to revise and summarise the present knowledge of the occurrence and distribution of the mirid subfamily Cylapinae of Africa, to carry out a phylogenetic analysis and to propose a new classification of this subfamily.

Material and methods

Almost all institutions that may be expected to store material from the Afrotropical Region have been contacted. Of those listed, the Museum in Tervuren, has by far the largest collection of Cylapinae, especially from West Africa. The most important historical collections are those in Helsinki and Budapest with most Poppius' and Reuter's types, the British Museum with Distant's material, and the Museum in Paris with the types of Poppius, Carvalho and Odhiambo. Very important collections are also stored in Copenhagen, St. Petersburg, Innsbruck and other places listed below.

Many of the specimens in the Museum in Tervuren were labelled as new species by Doctor Guy Schmitz. Descriptions of these species have never been published but in most cases I have adopted the names proposed by him. I have introduced some changes only where corrections seemed necessary or where I could not recognise the meaning and gender of the name.

Morphological terminology used in the descriptions and redescriptions is given according to SCHUH & SLATER (1995). The names of the authors of the descriptions are given at least once in each presented genus and species. Techniques for the examination of genitalia, including inflation of phallus, follow the papers of KELTON (1959), pretarsal structure was examined after the legs had been kept for several hours in KOH and put into glycerine. Illustrations were made using Olympus stereo-microscope SZX — 9, and a drawing tube. Types and other material data are quoted exactly as they appear: a comma denotes the end of a line of print and a semicolon separates data quoted on different labels.

The cladogram showing the systematic position of Cylapinae within Miridae was constructed by manual method and the polarisation of the characters was presented after KERZHNER (1981), SCHUH & SCHWARTZ (1984) and SCHUH & ŠTYS (1991). To present phylogenetic relationships within Cylapinae cladistic analysis was undertaken using the computer software Hennig86 ver. 1.5 (FARRIS, 1988). The final cladogram and the mapping of characters were produced using Clados (NIXON, 1992). A total of 20 characters

at the tribal and subtribal levels were listed, their character states were used to construct the data matrix (Table 2). Most characters were binary, with the exception of a few three-state characters. They were polarised (0 → 1, or 0 → 1 → 2) based upon out-group comparisons, where 0 denotes the most plesiomorphic state. Characters were polarised with the subfamily Isometopinae as an out-group (Fig. 16).

Abbreviations

BPBM — Department of Entomology Collection, Bernice P. Bishop Museum, Honolulu, HI USA;
BMNH — Natural History Museum London, England;
HNHM — Hungarian Natural History Museum, Budapest, Hungary;
IRSNB — Institut Royal des Sciences Naturelles de Belgique, Bruseles, Belgium;
IZPAS — Institute of Zoology PAS, Warsaw, Poland;
JGC — author's collection;
LC — Rauno Linnavuori's collections, Raisio, Finland;
MCSN — Museo Civico di Storia Naturale, Genova, Italy;
MNHN — Muséum National d'Histoire Naturelle, Paris, France;
MNHU — Museum für Naturkunde, Humboldt-Universität, Berlin, Germany;
MRAC — Musée Royal de l'Afrique Centrale, Tervuren, Belgium;
NMSA — Natal Museum, Pietermaritzburg, South Africa;
NMWC — National Museum of Wales, Cardiff, Wales, UK;
SU — Department of Zoology, University of Silesia, Poland;
TLI — Tiroler Landesmuseum, Innsbruck, Austria;
ULB — Université Libre de Bruxelles, Belgium;
USNM — National Museum of Natural History, Washington, USA;
ZIN — Zoological Institute RAS, St. Petersburg, Russia;
ZMC — Zoological Museum, University Copenhagen, Denmark;
ZMHU — Zoological Museum, Helsinki University, Finland.

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General part

Historical account

The subfamily Cylapinae belongs to the least studied groups of Miridae, although at the beginning of the present century it was a matter of considerable interest and serious discussions. The systematics of Cylapinae was analysed in a number of papers and many genera and species were described, chiefly from the Old World.

It was DISTANT (1883) who first suggested a separate unit for the genera now grouped in Cylapinae. He created a new divisio Valdasaria for the genus *Valdasus* Stål and other genera, some of them not related to Cylapinae in the present sense of this name. The description offered by Distant was rather vague, he distinguished another new group on the basis of a sulcus or, more precisely, an incision on the head ("(...) [head] sulcated, and sometimes more correctly to be described as excavated") and antennae inserted frontally in line with eyes.

REUTER (1875) regarded Miridae as a subfamily (Capsina) of Cimicidae. He introduced a separate divisio Teratodellaria for a new genus and species described on the basis of specimens found in the French port Rouen on a ship from Senegal. In his description he put emphasis on the lack of arolia and the horizontally elongated head. Almost twenty years later REUTER (1893) created a new divisio Lygaeoscytaria for a new genus and species found in Tasmania, *Lygaeoscytus cimicoides*, again drawing attention to the lack of arolia. Two years later the same author (REUTER, 1895) described divisio Fulviaria for the genus *Fulvius* Stål, which he synonimized with the genera *Teratodella* Reuter, *Pamerocoris* Uhler and *Camelocapsus* Reuter. Hence, the former name Teratodellaria became a synonym of Fulviaria.

KIRKALDY (1903) suggested a new divisio Cylaparia: "Diese Gattung gehört richtig zu den Cylaparia (= Eucerocoraria Kirk. = Monaloniaria Reuter = Valdasaria Distant)". The divisio Cylaparia was also recognised by DISTANT (1904), who placed there 6 genera, none of which, however, was related to Cylapinae.

KIRKALDY (1906a) divided the family Miridae into only two subfamilies: Isometopinae and Mirinae, the latter including 26 tribes. Cylapini, Fulviini, Peritropini and Bothriomirini constituted separate tribes, but they were not associated in any way. Moreover, a number of Cylapinae genera were included in other tribes. Somewhat earlier REUTER'S (1905) paper was published, where he modified the generic classification of particular tribes (from among twenty genera of Cylapini sensu KIRKALDY 1906a he recognised only *Cylapus Say* and *Vannius* Distant) and presented a slightly different view on the classification of Miridae. KIRKALDY (1906b) largely accepted Reuter's ideas, although he did not quite agree with the placement of several genera outside Cylapinae: "tribe Cylapini: Reuter removes 3 to the Capsini, retains 1 and 4 in the Cylapini, and most (or all) of the rest to the Bryocorini, I regret I cannot altogether follow him in that".

Somewhat later the first fundamental revision of the subfamily Cylapinae was published — POPPIUS (1909), referring to REUTER'S paper in press (1910), combined the divisio Cylaparia and Fulviaria into the subfamily Cylapinae. He refused to regard Fulvidaria as a separate tribe, as Reuter had suggested, and placed the genus *Fulvidius* Popp. within the divisio Fulviaria.

According to Poppius the characteristic features of the subfamily are thin and delicate tarsus with long, slender segments, and delicate claws always without arolia. Poppius distinguished two tribes (divisio) mainly on the basis of the structure of antennae: the last two segments are long and thin in Cylaparia, but short and slightly swollen in Fulviaria. At the same time the author observed that both groups were related, and that the genus *Cylapofulvius* manifested intermediate characters. The tribe Cylaparia incorporated the following genera: *Modigliania* (now *Proamblia*), *Rhinocylapus*, *Rhinomiris*, *Rhinomiridius*, *Cylapus*, *Vannius* and *Vanniopsis*. The tribe Fulviaria included: *Fulvidius*, *Cylapofulvius*, *Trichofulvius*, *Rhinofulvius*, *Ceratofulvius*, *Fulvius*, *Euchilofulvius*, *Peritropis* and *Bironiella*. Many of the genera were described by Poppius for the first time. In a revision of Miridae of the Ethiopian Region POPPIUS (1912) placed a new genus *Microfulvius* within Fulviaria and described a new genus *Hemiophthalmocoris*, of whose systematic position he was uncertain.

REUTER (1910) raised, within Cylapinae, the already mentioned tribe (divisio) Fulvidiaria for the oriental genus *Fulvidius* Poppius. Representatives of the present Bothriomirini were placed in separate subfamilies. The genus *Bothriomiris* Kirkaldy was included in the subfamily Ambraciina, tribe

(divisio) Ambraciaria, and the genus *Dashymenia* Poppius in the subfamily Bothynotina, divisio Dashymeniaria. Reuter also retained the subfamily status of Lygaeoscitina for the genus *Lygaeoscytus* Reuter. Simultaneously BERGROTH (1910) suggested that the genus *Bothriomiris* Kirkaldy should be included in Cylapinae, an idea supported by REUTER (1912). This genus was so different from all then known Miridae that, from the moment it was described (KIRKALDY, 1902), it was considered not to be related to other genera and to form a separate divisio.

On the basis of pilose membrane POPPIUS (1914) decided that *Bothynotus* Fieber, *Bothriomiris* Kirkaldy and *Dashymenia* Poppius were related, and extended Cylapinae to incorporate the divisio Bothynotidae with the Palaearctic genus *Bothynotus*, and the tribe (divisio) Dashymeniaria with the Oriental genera *Dashymenia*, *Bothriomiris*, *Dashymeniella* Popp., *Leprocapsus* Popp. and the newly described *Bothriomiridius* and *Bakeriella*.

VAN DUZEE (1916, 1917) in his classification of Miridae treated Cylapinae as a subfamily and included the tribes Cylapini and Fulviini in this group.

POPPIUS' (1914) proposal was generally accepted by BERGROTH (1920), who suggested, however, that Fulviaria and Cylaparia should be combined and the genus *Hemiophthalmocoris* Popp. should be treated as an "(...) aberrant genus of Cylaparia". The same author pointed out that the divisio Dashymeniaria should be renamed as Bothriomiraria, since the genus *Bothriomiris* had been described earlier, and that the correct spelling of the generic name *Dashymenia* was *Dasymenia*. BERGROTH (1920) also showed that the name *Bakeriella* proposed by Poppius was preoccupied and suggested the name *Bakeriola*. He listed all described genera and species of Cylapinae and added a new genus *Xenofulvius*.

MCATEE & MALLOCH (1924) attempted to improve the classification of the superfamily Cimicoidea proposed by their predecessors. The authors pointed out that the genera *Peritropis* Uhler and *Diphleps* were related and observed that both groups bridged the gap between Isometopinae and other Miridae. Even though a number of features suggest a close relationship between Cylapinae and Isometopinae, the mentioned genera have nothing in common except general appearance treated in a very superficial way. McAtee & Malloch's work, written in a rather bombastic style, was ironically received by BERGROTH (1925).

The proposal to combine Fulviini and Cylapini was not widely accepted and the groups were treated as separate tribes, although BLATCHLEY (1926) in the monograph on Heteroptera of North-East America placed the genera *Cylapus*, *Fulvius*, *Peritropis* and *Bothynotus* within the subfamily Cylapinae without dividing it into tribes. KNIGHT (1941) distinguished the tribes Cylapini and Fulviini as groups represented in North America.

HSIAO (1944) described a new genus *Rhinophrus* within the subfamily Cylapinae and observed that it was related to the genus *Fulvius*, but suggested that it might require a new tribe Rhinophrini. The genus *Rhinophrus* is distinctly different from other genera and many years after it had been described it was even erroneously synonimized (GORCZYCA, 1994) with *Acrorrhinium* Noualhier (only on the basis of the description and illustration given by Hsiao). The examination of the holotype of *Rhinophrus borneensis* Hsiao showed that, except the shape of the head capsule, both genera had nothing in common (GORCZYCA, 1996c).

Until CARVALHO (1952b), the system of classification did not undergo any significant changes, only new genera and species were described. In his classification of Miridae, by far the most comprehensive work since REUTER (1910), Carvalho divided Cylapinae into three tribes: Cylapini, Dashymeniini and Fulviini, and included the genus *Lygaeoscytus* Reuter in Fulviini, arguing that placing it in a separate group was redundant. The tribe Fulviini housed also *Hemiophthalmocoris* Poppius, *Orasus* Distant, *Rhinomiris* Kirkaldy, *Rhinomiridius* Poppius, *Rhinocylapidius* Poppius and *Rhinocylapus* Poppius. Carvalho synonimized the genus *Xenofulvius* Bergroth with *Ceratocapsus* Reuter, a representative of Orthotylinae. Recently, *Xenofulvius* has been reestablished as a separate taxon (KERZHNER & SCHUH, 1995) but placed within the subfamily Orthotylinae as incertae sedis (SCHUH, 1995).

Carvalho, in contrast to POPPIUS (1909), based his division into Cylapini and Fulviini on the position of the head, horizontal in Fulviini and vertical in Cylapini. According to CARVALHO (1952b), Dashymeniini (the author did not change the name of the tribe into Bothriomirini, as had been rightly suggested by Bergroth) included the following genera: *Bakeriola* Bergroth, *Bothriomiris* Kirkaldy, *Dashymenia* Poppius, *Dashymeniella* Poppius and *Leprocapsus* Poppius; the genus *Bothriomiridius* Poppius was synonimized with *Bothriomiris* Kirkaldy.

Carvalho placed the following genera in the tribe Cylapini: *Cinnamus* Distant, *Corcovadocola* Carvalho, *Cylapomorpha* Poppius, *Cylapus* Say, *Faliscus* Distant, *Mycetocylapus* Poppius, *Paracylapus* Carvalho, *Phylocylapus* Poppius, *Proamblia* Bergroth, *Trichofulvius* Poppius, *Vanniopsis* Poppius, *Vannius* Distant and *Rhinophrus* Hsiao. The latter was included in Cylapini despite HSIAO's suggestions (1944), who associated it rather with the genus *Fulvius*.

CARVALHO (1954) included first fossils in Cylapinae. He synonimized the Baltic amber genus *Oligocoris* Jordan with *Fulvius* Stål and changed the preoccupied name of another fossil *Electrocoris* Jordan into *Jordanofulvius*. Later he also described a new Baltic amber genus *Archeofulvius* (CARVALHO, 1966).

Largely the same systematic arrangement as in 1952b was presented by Carvalho three years later in his Key to the Genera of the World's Miridae (CARVALHO, 1955a). In the same year CARVALHO (1955b) produced another work where he changed the name of the tribe Dashymeniini to Bothriomirini. The system was recapitulated in the Catalogue of the World's Miridae published two years afterwards (CARVALHO, 1957).

Long after the Catalogue had been published no significant changes in the classification of Cylapinae were proposed, the division into tribes and the placement of particular genera was accepted after Carvalho and not questioned. Only recently opinions have been voiced that Cylapinae are not a consistent group, and that at least Cylapini and Fulviini are not monophyletic (SCHUH, 1995; SCHUH & SLATER, 1995). Despite these opinions Carvalho's classification was repeated two years later (CARVALHO & COSTA, 1997).

Since the Catalogue many new taxa have been described within Cylapinae, particularly Carvalho's contribution to the study of Cylapinae of the Neotropical Region cannot be overestimated (e.g. CARVALHO, 1982, 1986a, 1989; CARVALHO & GOMES, 1971). Carvalho co-authored a revision of Cylapinae of Papua New Guinea (CARVALHO & LORENZATO, 1978) and was involved in a number of studies on the distribution of Miridae and Cylapinae in various regions of the world (e.g. CARVALHO, 1972, 1981b; CARVALHO & GAGNÉ, 1968). His analysis of types stored in collections throughout the world helped to systematize the position of many genera within Miridae; e.g. he transferred the genus *Orasus* Distant from Cylapinae to Orthotylinae (CARVALHO, 1976) and synonimized *Trichofulvius* Poppius with the Phylinae genus *Hallodapus* Fieber (CARVALHO & LORENZATO, 1978). It should be remembered, however, that Carvalho's classification of Cylapinae was not always consistent and that certain genera which according to his criteria should belong to the tribe Fulviini were included in Cylapini, e.g. SCHUH (1976) draws attention to the fact that the genus *Cylapocoris* Carvalho is closer to the genus *Fulvius* and other related groups than to the tribe Cylapini, where it was placed by Carvalho.

In the late 60's and during the 70's a number of works on Cylapinae of different geographical regions — the Afrotropical Region included — were published (ODHIAMBO, 1967; SCHMITZ, 1970, 1978; LINNAVUORI, 1975; SCHMITZ & ŠTYS, 1973). The authors of the latter suggested that Fulviini should be given the subfamily status, equal to Cylapinae. However, their proposal has not been accepted and the tribal status of all the subgroups of Cylapinae has been maintained.

SCHUH (1974), in his study of Phylinae and Orthotylinae of South Africa, transferred the genus *Parafulvius* Carvalho from Cylapinae, where it had initially been placed for no apparent reason, to Phylini, and synonimized

the genus *Cinnamus* Distant, so far belonging to Cylapinae, with *Acrorrhinium* Noualier from Phylinae. Reverse transfers were also attempted: new genus *Carvalhoma* was originally placed within Phylinae (SLATER & GROSS, 1977), later transferred to Cylapinae (SCHUH & SCHWARTZ, 1984).

As has been mentioned before, the monophyletic status of Cylapinae has recently been questioned (SCHUH, 1995; SCHUH & SLATER, 1995) and latest publications, which exclude the genera *Vannius* Distant, *Vanniusoides* Carvalho & Lorenzato, *Vanniopsis* Poppius, *Paracylapus* Carvalho, *Afrovannius* Gorczyca (GORCZYCA, 1997b) and *Seychellesius* Carvalho (GORCZYCA, 1998d) from Cylapinae, seem to confirm these opinions. The first five genera were previously regarded as representatives of the tribe Cylapini (CARVALHO, 1957), but an examination of their pretarsal structures disproved the belief and they have been placed in a new tribe Vanniini (GORCZYCA, 1997b). The new tribe was originally included in the subfamily Palaucorinae Carvalho but further investigations have shown that the taxonomic position of the tribe is still unclear (GORCZYCA, 1998f).

Also the genus *Seychellesius* Carvalho, until recently placed within the tribe Fulviini, has been transferred to Termatophylini (Deraeocorinae) on the basis of the characters of antennae, hemelytra and pronotum as well as pretarsal structures (GORCZYCA, 1998d).

The authors of the Catalogue of Hemiptera of Australia (CASSIS & GROSS, 1995) maintain the division of Cylapinae into Cylapini and Fulviini, and include into the former the genera *Carvalhoma* Slater & Gross and *Schizopteromiris* Schuh, which were formerly placed within Cylapinae but not assigned to any tribe (SCHUH & SCHWARTZ, 1984; SCHUH, 1986b).

Systematic position of Cylapinae within Miridae

In one of the earliest classifications of Miridae REUTER (1905) placed Dicyphinae and Cylapinae (as Cylaparia and Fulviaria) near Orthotylinae. He regarded the lack of pronotal collar as a primitive feature, which is the reason why he placed Isometopinae at the bottom of the phylogenetic diagram, close to Phylinae (in the present sense). A few years later the same author (REUTER, 1910) grouped Cylapinae (in the present sense) in four subfamilies albeit not presenting a dendrogram of similarities within Miridae.

Three of them, Bothynotina, Ambraciina and Cylapina, were placed between the subfamilies Mirina and Bryocorina, while the fourth subfamily, Lygaeoscitina, close to Phylina. In his treatment of the group the author focused on the presence and shape of parempodia.

In the system presented by VAN DUZEE (1917) Cylapinae are located near Clivineminae and Dicyphinae, while KNIGHT (1941) in his genealogical tree placed the group between Bryocorinae and Clivineminae. The most important features taken into account by the latter author in his research of phylogenetic relationships within Miridae was the presence of pulvilli, genital structures, modifications of the thorax and the biology.

According to WAGNER'S classification (1955) based only on the structure of the male genital block, Bryocorinae are a sister group of all other mirids. Bryocorinae, Cylapinae and Pilophorini-Phylini-Hallodapini constitute separate lineages branching off from the main stem — Orthotylinae-Type. Wagner places Cylapinae on the branch between Bryocorinae and Pilophorini-Phylini.

In his study of the male genital block KELTON (1959) suggested that *Cylapus* Say resembled some Halticini in the structure of vesica, while the genus *Fulvius* Stål approached Dicyphinae.

LESTON (1961) presented results of his research on the testis follicle number in Miridae, but he did not study Cylapinae. On the basis of Kelton's works, contributions of other authors and his own analysis he suggested that Cylapinae should be placed with Deraeocorinae. The main features to confirm this hypothesis were smooth claws and predacity of representatives of both groups, as well as a similar apical ring. SCHAEFER (1997) in his recent paper regards predacity of the subfamily Deraeocorinae as secondary and points out that it should not be associated with the predatory life style of other, primitive groups. This hypothesis seems to be confirmed by the fact that deraeocorid species are relatively closely connected with a particular plant and that they lay eggs into the tissue of specific plants.

According to SCHUH (1974) the genus *Psallops* is most closely related to Cylapinae, but he pointed also to certain characters that could suggest the kinship between Cylapinae and Isometopinae. Somewhat later he established a separate subfamily for this genus, Psallopinae (SCHUH, 1976). SCHUH (1974, 1976), presented a cladistic analysis of relationships within the family and regarded Isometopinae and Cylapinae as the most primitive mirid groups, equipped with a number of derived characters. Among the features that distinguish Cylapinae and Isometopinae the author (SCHUH, 1974) mentioned the lack of pronotal collar in the latter group (in fact the apical ring is also absent from many representatives of Cylapinae). The presence of the apical ring is, in SCHUH'S opinion (1974), a plesiomorphy which occurs in Cylapinae, Bryocorinae, Dicyphinae, Deraeocorinae and Mirinae. In his cladogram

of the evolution of Miridae the author placed Isometopinae as a sister-group of other mirids and treated Cylapinae as a group which branched off very early, thus becoming a sister group of the other subfamilies. This cladogram shows Phylinae as one of the most derived groups (SCHUH, 1974, Fig. 347).

An analysis of the distribution and structure of trichobothria in mirids (SCHUH, 1975) revealed a primitive number and pattern in Cylapinae, which differed, however, in representatives of Cylapini and Fulviini. Having considered the tarsal structures (among other characters), SCHUH (1976) once again separated Isometopinae from the rest of mirids as their sister group and treated Psallopinae as a group related with Phylinae (he understood Orthotylinae as a tribe within Phylinae). Much earlier CARVALHO (1956), who placed the genus *Psallops* within Phylinae, suggested that in the future it should be included in Isometopinae. SCHUH (1976) pointed to Cylapinae as a sister group of the clade Mirinae-Deraeocorinae and Bryocorinae. In the same work the author suggested that the genera related with *Cylapus* Say, e.g. *Valdasus* Stål, formed a specialised group distinct from other Cylapinae. He considered the possibility of associating Psallopinae and Cylapinae, but he did not find any corresponding synapomorphies. According to SCHUH (1976) the claw with a subapical tooth, without pulvilli, and setiform parempodia are plesiomorphic characters, which cannot justify the treatment of Isometopinae-Psallopinae-Cylapinae as sister groups. SCHUH (1976) understood Phylinae as a subfamily with many plesiomorphic characters, closely related to Psallopinae. In his opinion the presence of ocelli in Isometopinae is a primitive character, unlikely to have developed several times. The two-segmented tarsus is, according to Schuh, a neoteny, which should not be taken into account in phylogenetic studies either. Somewhat later Schuh changed his mind and in the cladistic analysis of Cimicomorpha (SCHUH, 1986a; SCHUH & ŠTYS, 1991) he treated the bisegmented tarsus as an apomorphy. This view has been confirmed by KUKALOVA-PECK (1997). In her analysis of the leg formation in insects, based on fossil material, she shows that the second tarsal segment — eutarsus — was already fully separated in the most primitive fossil insects.

SCHUH & SCHWARTZ (1984) treat Isometopinae-Psallopinae-Cylapinae as a monophyletic group and argue that the reduction of ocelli occurred twice (in Psallopinae and Cylapinae), while the presence of the subapical tooth is synapomorphic for the subfamilies.

Considering relationships within Miridae one must emphasise the importance of the subapical tooth on the claw. Subapical tooth occurs in Psallopinae, Isometopinae, Cylapinae, some Vanniini sensu GORCZYCA (1998f), but also in certain Phylinae (LINNAVUORI, 1988, 1993) as well as in the undescribed mirid taxon from Sulawesi, which is equipped with a number of unique sets of characters (in prep.). The tooth in Palaucorinae sensu Carvalho

is of completely different nature, and it seems to represent the type described by SCHUH & SLATER (1995) as the multiple cleft claw. The presence of subapical teeth in various unrelated groups is probably adaptive, e.g. it may be viewed as an adaptation to the life in a spider's web (SCHUH, 1976; SCHUH & SLATER, 1995). In spite of the fact that this structure occurs also in other mirids, in Isometopinae-Psallopinae and Cylapinae the subapical tooth is probably a synapomorphic character, as SCHUH & SCHWARTZ (1984) suggested. On the other hand, in some representatives of these subfamilies claws are not toothed subapically e.g. *Vannius* within Vanniini, some genera of Fulviini, Bothriomirii and also some genera of Isometopinae (AKINGBOHUNGBE, 1996). The lack of subapical tooth in these genera is probably their autapomorphic character and should not be considered in phylogenetic relationships within these groups.

One of the characters that cast doubt on the kinship of Isometopinae-Psallopinae-Cylapinae is the presence of the apical ring in the latter group, which seems to be a characteristic feature of the subfamilies Mirinae-Deraeocorinae-Bryocorinae. However, the ring in Cylapinae and the other mentioned groups is not a homologous structure (SCHUH & SCHWARTZ, 1984). Moreover, the authors point out that the ring is also absent from Bothriomirini. Actually, it is sometimes absent from the representatives of the tribe Fulviini (CHÉROT & GORCZYCA, 1999).

Recent studies have confirmed earlier suggestions that Isometopinae are a sister group of other mirids and, alongside Psallopinae and Cylapinae, are the most primitive subfamilies among recent mirids (SCHUH & ŠTYS, 1991; HERCZEK, 1993). These subfamilies belong at the same time to the least studied groups. Their geographical distribution, life histories and the estimated number of genera and species are largely unknown. Cylapinae, Psallopinae and Isometopinae are sister groups; short, bisegmented tarsus and claws equipped with a subapical tooth are their synapomorphic characters (Table 1, Fig. 1). A very important character for the clade Isometopinae-Psallopinae-Cylapinae is their carnivory. Heteroptera as a group are thought to be basically carnivorous (SCHAEFER, 1997) while within the family Miridae only representatives of these subfamilies are originally carnivorous (partly mycetophagous?), never host-specific. Members of the other mirid subfamilies, even predators, are host-specific on the plant, which indicates that their carnivory is secondary.

The tarsus in the subfamilies Isometopinae and Psallopinae is relatively stout, eyes are large, antennae are inserted very low. The apomorphies of Cylapinae include thin, elongated tarsus, and slender claws (Table 2, Figs 1, 16), but no synapomorphic characters have been found for Isometopinae (Fig. 1).

Of all the presented ideas of kinship within Miridae the voice which corresponds most closely to my own views belongs to SCHUH (1974), supplemented with a clade Psallopinae (Fig. 1). Assuming that smooth claws are a plesiomophic character of mirids and the presence of setiform parempodia in Phylinae is a reversal, the latter group should be regarded as most derived — this is how SCHUH (1974) presented it.

The cladogram (Fig. 1) was prepared by hand, synapomorphic characters of Miridae (1—3) were adopted after KERZHNER (1981), polarisation of the characters 4—7 and 9—10 was adopted after SCHUH & SCHWARTZ (1984) and SCHUH & ŠTYS (1991).

Table 1

A list of apomorphic and plesiomorphic characters in Miridae used in the construction of the cladogram (Fig. 1)

	Plesiomorphic characters	Apomorphic characters
1.	parameres symmetrical	parameres asymmetrical
2.	more than 2 cells on forewing membrane	membrane two- or single-celled
3.	trochanters undivided	trochanters divided
4.	tarsi tri-segmented	tarsi two-segmented
5.	claws without subapical tooth	claws toothed subapically
6.	parempodia setiform	parempodia lamelliform
7.	pulvilli lacking	pulvilli present
8.	originally carnivorous	herbivores or secondary predators
9.	eyes relatively small	eyes large occupying most of the head
10.	antennae inserted below the margin of eyes	antennae inserted higher
11.	tarsi short	tarsi slim, long
12.	claws short	claws slim, long
13.	ocelli present	ocelli absent

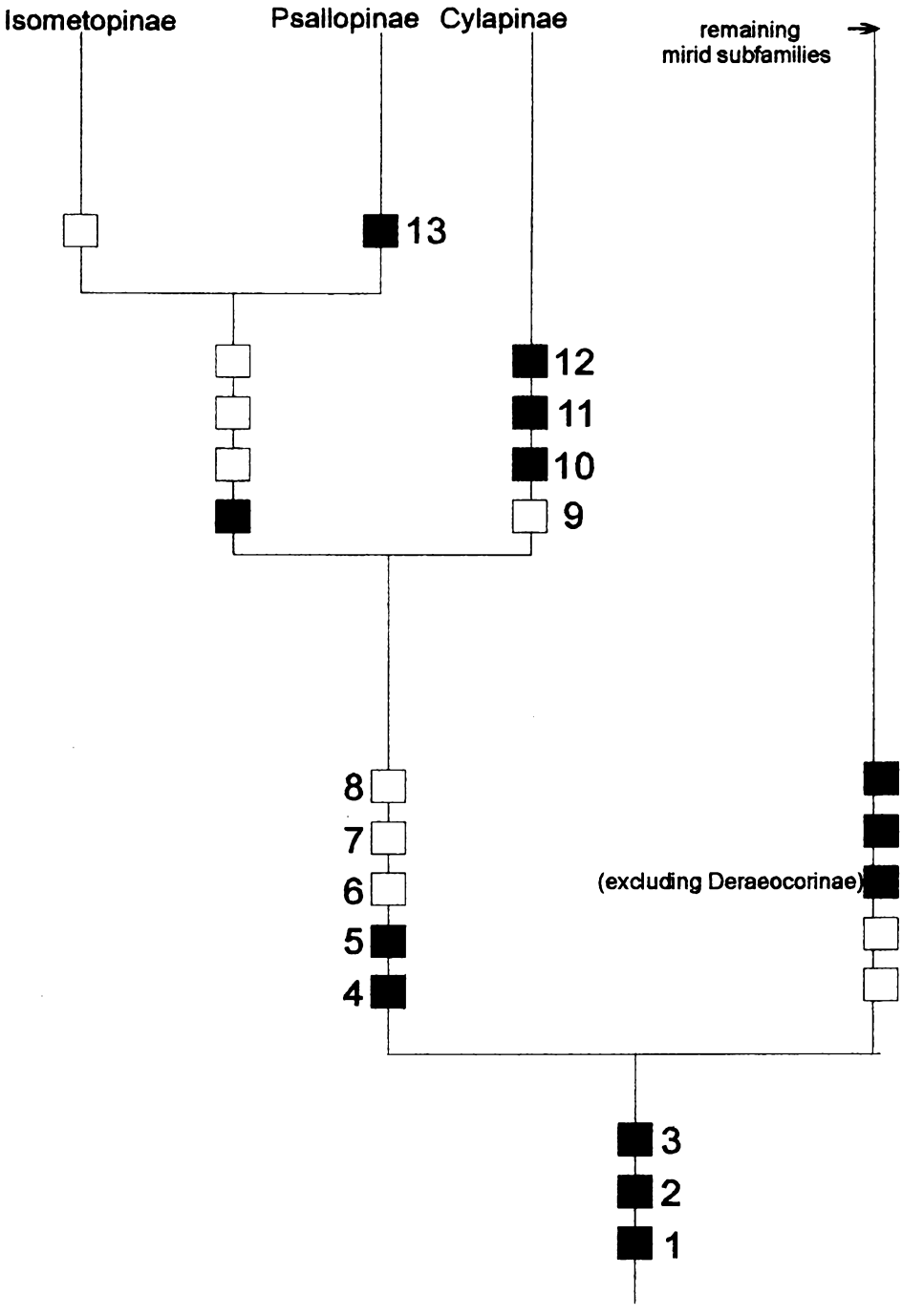


Fig. 1. Systematic position of the subfamily Cylapinae within Miridae. Black squares — synapomorphic states

Diversity of characters in Cylapinae

Body

The body of cylapines is usually elongated and slim (most Fulviini, all Rhinomirini and Cylapini), but it can also be stout, even broad and oval (some Fulviini, e.g. some representatives of the genus *Peritropis* (*Peritropis novocaledonica* Gorczyca) and all Bothriomirini). There are forms whose body is distinctly flattened, adapted to the life under bark of trees (e.g. representatives of the genus *Euchilofulvius* Poppius), and with the body strongly bulging (e.g. some Bothriomirini and species of the genus *Schizopteromiris*). Among cylapines there are both small forms, e.g. the species of the genus *Schizopteromiris*, where males are 1.5 mm long at most, and big species, sometimes longer than 10 mm, e.g. some representatives of Cylapini and Rhinomirini.

The body coloration is usually dark, brown, ochre or black, frequently with numerous spots or another colour pattern, but forms whose body is almost white have also been found (*Peritropis tanzanica*). Species with bright coloration of the body are rare, e.g. the orange coloured *Fulvius flaveolus*.

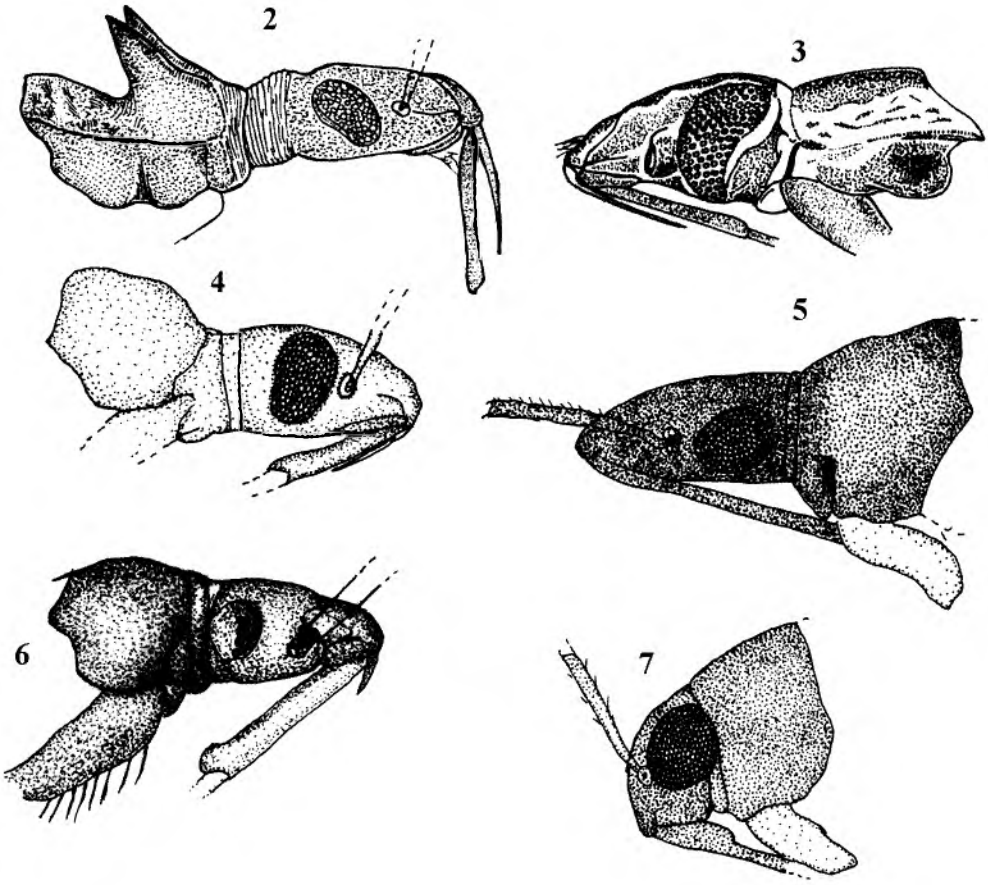
Head

In most Cylapinae head is more or less elongated, only in the tribe Bothriomirini it is short, very broad (Fig. 7), sticking firmly to pronotum, which is undoubtedly a plesiomorphic character. Their clypeus is usually flattened and short, although it sometimes bears a projecting tubercle (*Afrobothriomiris*).

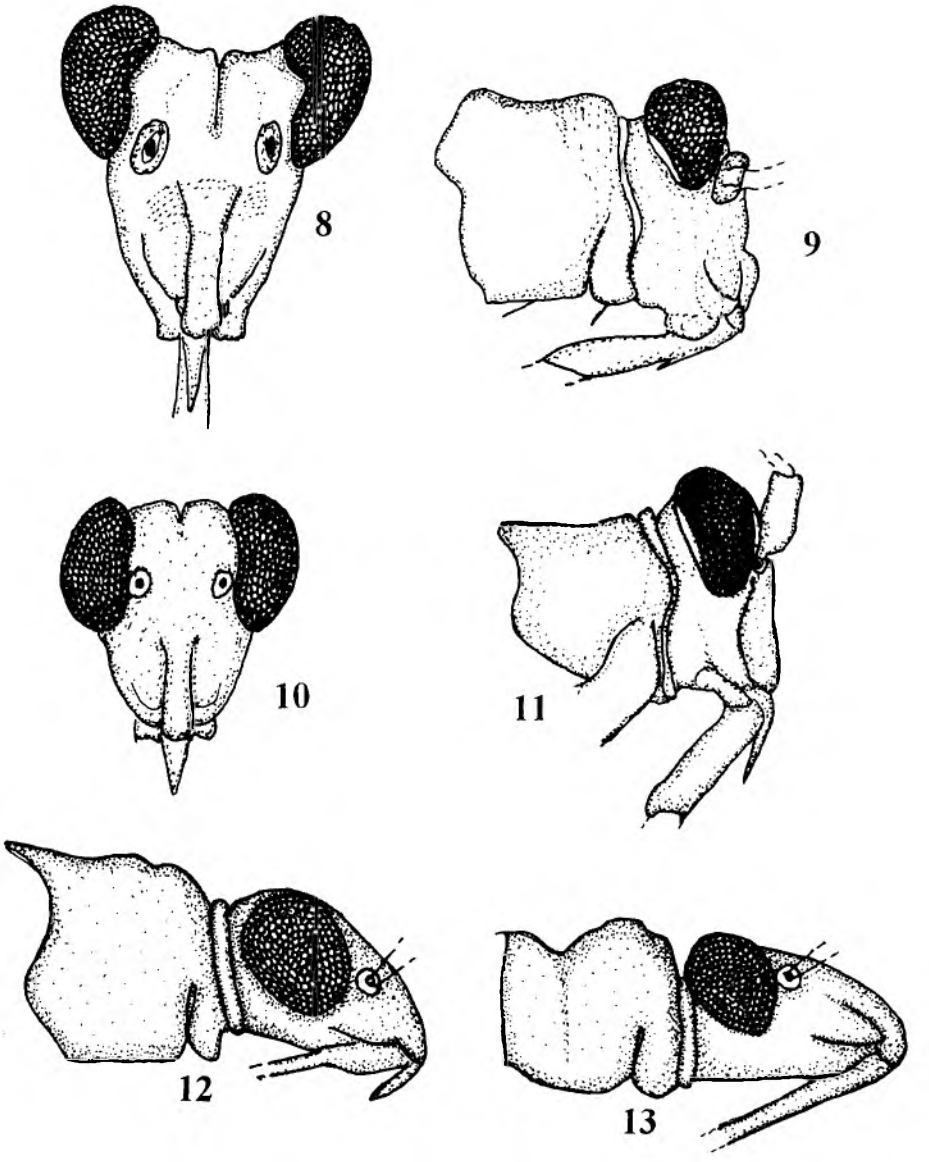
The elongation of head in other tribes is their synapomorphic character. In Cylapini head is strongly elongated dorsoventrally, almost opisthognathic (Figs 9, 11). The head structure similar to other genera of Cylapini is observed in Vanniini Gorczyca, a tribe of an unclear systematic position, and in some representatives of Palaucorinae sensu Carvalho (Palaucorina sensu Schuh). Still, while in the subtribe Phylocylapina (*Cylapomorpha*, *Phylocylapus*) vertex

is usually convex (Fig. 10), sometimes divided with a sulcus (as in some Vanniini), in the neotropical subtribe Cylapina it is normally deeply excavated and eyes are distinctly raised (Fig. 8).

A characteristic feature of Fulviini is the head elongated horizontally, e.g. in *Schmitzofulvius*, *Fulvius*, *Phyllofulvidius*, some *Hemiophthalmocoris* (Figs 2—4, 6) and *Euchilofulvius*, although in some genera the width to length ratio changes in favour of the former, e.g. in *Peritropis*, *Peritropella* and *Punctifulvius*. Head of the genus *Rhinophrus* is characteristically shaped — apart from a strong, pointed processus on vertex there is also elongated clypeus strongly flattened laterally. In *Gulacylapus* the head is almost round, with well-developed gula (CARVALHO, 1986b, Fig. 2).



Figs 2—7. Heads in lateral view: 2 — *Schmitzofulvius bigibber* Gorczyca, holotype; 3 — *Phyllofulvidius africanus* gen. nov., sp. nov., holotype; 4 — *Fulvius unicolor* Poppius, male; 5 — *Rhinocylapus sumatranus* Poppius, holotype (IZPAS); 6 — *Hemiophthalmocoris micropterus* sp. nov., holotype; 7 — *Bothriomiris* sp. (JGC)



Figs 8—13. Heads: 8—9 — *Cylapus tennuicornis* Say, male (MRAC); 10—11 — *Cylapomorpha migratoria* (Distant), male; 12 *Rhinomiris schaeferi* Gorczyca & Chérot, male, holotype (IRSNB); 13 — *Rhinomiris camelus* Poppius, male, paralectotype (MCSN)

In Rhinomirini the head is completely horizontal, strongly elongated, e.g. in *Rhinocylapus sumatranus* Poppius, *Rhinomiris camelus* Poppius (Figs 5, 13) or subhorizontal, as in some representatives of the genera *Rhinomiris* Kirkaldy (Fig. 12) and *Rhinomiridius* Poppius. Only in *Proamblia*, head is rounded.

In the genera *Schizopteromiris* and *Carvalhoma*, head is respectively short and cone-shaped, or short and rounded.

Eyes

Eyes can adhere to pronotum (Bothriomirini, Cylapini, most Fulviini, partly Rhinomirini) or be distinctly separated from it (e.g. *Rhinocylapus* and *Schmitzofulvius*).

In the tribe Bothriomirini, eyes are relatively small, almost circular, with very small, closely fitting ommatidia. Only sporadically eyes are bigger (*Afrobothriomiris*), sometimes with interocular setae (the undescribed genus from Borneo).

The representatives of the tribe Rhinomirini usually have small eyes, sometimes slightly flattened, with small ommatidia (*Rhinocylapus*), or somewhat bigger, granulated, as in *Rhinomiris*, *Rhinomiridius* and *Lundbladiolla*.

In Cylapini eyes are always prominent, almost round, with minute ommatidia.

Eyes of Fulviini are most diverse in shape, they can vary from smallish, almost round (*Schmitzofulvius*, *Rhinofulvius*), to reniform, elongated, sometimes covering the side of head and reaching gula below (e.g. some species of the genus *Peritropis*). Ommatidia are big, granulated, sometimes distinctly separated and occasionally covered with long interocular setae, e.g. in *Hemiophthalmocoris* and in some species of the genera *Fulvius* and *Peritropis*.

Antennae

Antennae in cylapines are usually inserted on short tubercles and normally touch the margin of eyes, but in some Fulviini and Rhinomirini antenniferous tubercles are distinctly removed from eyes.

In most Bothriomirini the antennae are slender, the second segment is longest, sometimes slightly thickened apically (*Bothriomiris*, *Leprocapsus*), covered with short, dense setae. The second segment can sometimes be strongly swollen and slightly flattened (e.g. *Afrobothriomiris* and in the undescribed species of the genus *Bothriomiris* from Indonesia). The next two segments are usually very slender, covered with long, upright setae.

Antennae in Cylapini and Rhinomirini are linear, tapering apically, usually longer than the body, with strongly elongated segments III and IV, which is undoubtedly a synapomorphic character of these tribes. The first segment is sometimes strongly swollen (in some Cylapini, e.g. *Peltidocylapus*, *Cylapomorpha*, *Phylocylapus*), or elongated.

The antennal structure of Fulviini is usually similar to antennae in Bothriomirini, but with stronger modifications. The first segment is normally short, more or less thickened, but it can also be very long and thick, as in the undescribed genus from the Samoa Islands (Gorczyca in prep.). The second segment is longest, sometimes swollen, of different shape. It can be almost cylindrical (*Hemiophthalmocoris*), slightly swollen or club-shaped (*Euchilofulvius*), very strongly thickened (*Umboiella*, *Tryncoris*), or strongly flattened (*Peritropis crassicornis*, *Phyllofulvius*, *Phyllofulvidius* — Fig. 42). The two terminal segments can be very short and stout, or longer and slim, distiflagellum can occasionally be divided as in the genus *Mimofulvius* and some representatives of *Peritropis*. The secondary division of the last antennal segment occurs also in other heteropterans (ZRZAVY, 1991).

Some species have quite big sense organs on the second segment of antennae, which resemble rhinaria (e.g. *Peritropis tanzanica*). In males, as in other mirids (ALDRICH, 1996), they may also bear sex pheromone receptors.

Rostrum

Rostrum in Bothriomirini is short, reaching beyond forelegs, sometimes slightly beyond the second pair of legs (*Leprocapsus*). The two terminal segments measured together are approximately of the same length as the second rostral segment.

In Cylapini rostrum is somewhat longer and usually reaches beyond metalegs, it is also comparatively thick (*Cylapomorpha*, *Cylapus*, *Peltidocylapus*).

Rostrum of Rhinomirini is very slender and long, frequently as long or longer than the body (*Rhinocylapus*), often arcuate. The first segment is usually thin, it may be long, reaching beyond forecoxae (*Rhinocylapus*), or only slightly longer than head (*Lundbladiolla*).

In Fulviini rostrum usually reaches beyond metalegs, but it can also be longer (*Cylapofulvius*, *Xenocylapus*) or shorter, as in the subgenus *Euchilofulvius* (*Lepidofulvius*). The first segment is normally as long as head

or longer, but it can occasionally be shorter, as in the genus *Euchilofulvius*. Rostrum can be straight (e.g. *Peritropis*) or arcuate (*Cylapofulvius*, *Euchilofulvius*, *Xenocylapidius*).

Pronotum, apical ring, scutellum and mesoscutum

The apical ring in Cylapinae cannot be treated as a structure homologous with the organ in Mirinae-Deraeocorinae-Bryocorinae (SCHUH & SCHWARTZ, 1984). Bothriomirini do not have apical ring (a very thin fold on the anterior margin of pronotum occurs in the genus *Leprocapsus*), which is also invisible in some species of the genus *Peritropis* and other Fulviini (CHÉROT & GORCZYCA, 1999), although it is present in most representatives of this tribe. The anal ring occurs in Cylapini, also in Rhinomirini the ring is distinctly marked and very thin.

Pronotum in Bothriomirini is very broad, strongly raised and punctate, covered with dense setae. The posterior margin is straight in all known representatives. In some genera, e.g. in *Leprocapsus* and in certain undescribed species of the genus *Bothriomiris*, the anterior lobe is more or less narrowed, with strongly elevated calli, which are sometimes fused (e.g. in *Bothriomiris*), or divided by a deep sulcus (*Leprocapsus*). In some other genera the anterior lobe is marked only by weakly convex and smooth calli. Mesoscutum in this group is completely or largely covered by pronotum. Scutellum is usually flat, but occasionally it can be raised to form, for instance, two roundish tubercles (*Leprocapsus*).

In the tribe Cylapini pronotum is uniform: short, broad, with distinct but usually small calli. The posterior margin in Cylapina is straight, although it can also be bisinuated, e.g. in *Peltidocylapus scutellaris* (Poppius), while in Phylocylapina it is always more or less bisinuated. Pronotum is punctate (Cylapina) or smooth (Phylocylapina), mesoscutum usually narrow. Flat or slightly raised scutellum sometimes bears a small tooth in the middle part.

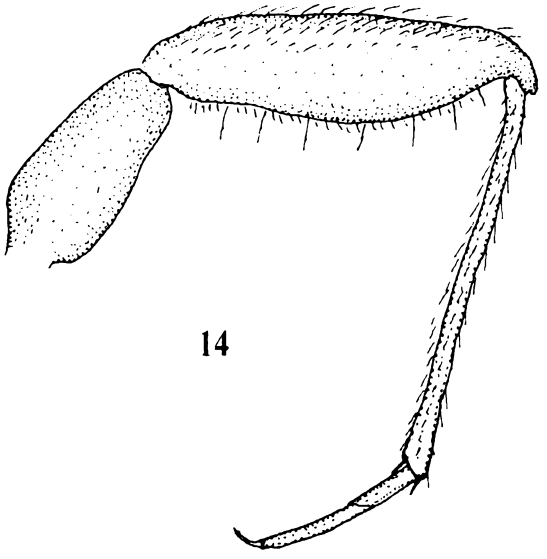
Pronotum is most diverse in shape in the tribe Fulviini. It can be trapezoidal, with strongly deflected, sharp lateral margins and elevated humeral angles (some species of the genus *Peritropis*), or very short and broad (e.g. the genera *Bironiella*, *Teratofulvioides*), or elongated and narrow (*Carvalhofulvius*). Calli can be completely flat and almost invisible, as in the genus *Punctifulvius*, or elevated in the form of long cones, e.g. in

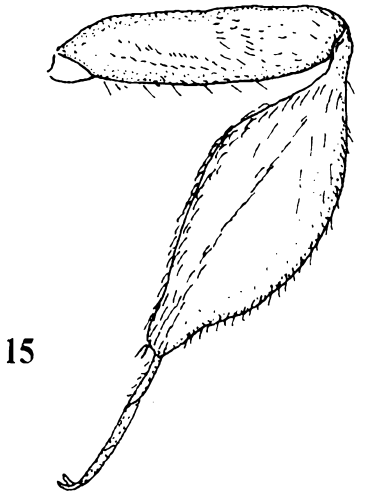
Schmitzofulvius and *Peritropisca*. Mesoscutum is well developed, frequently convex, usually with oblique carina on sides. Scutellum is flat or more or less elevated.

In Rhinomirini pronotum usually splits into the anterior and posterior lobes. This division is particularly distinct in some representatives of the *Rhinomiris*-complex, e.g. in *Rhinomiris camelus*, where calli are almost completely fused, strongly elevated and clearly separated from the rest of pronotum (Fig. 14). In *Rhinocylapus* the division is distinct but not so strongly marked, in the genus *Rhinomiridius* pronotum is relatively broad but the anterior lobe is discrete. Mesoscutum is well developed, scutellum is flat or distinctly elevated.

Legs

Bothriomirini have typical cursorial legs. In other Cylapinae forecoxae are conical, to a lesser or greater degree elongated, significantly bigger than meso- and metacoxae. Forefemora in Bothriomirini and partly in Cylapini are similar to other femora, in Rhinomirini and Fulviini they are to a lesser or greater degree enlarged, similar to those in Nabidae and Reduviidae. Particularly strongly developed coxae and forefemora constitute sometimes a structure that resembles a raptorial apparatus, as in the representatives of the *Cylapofulvius*-complex (Fig. 14).





Figs 14—15. Forelegs: 14 — *Cylapofulvius punctatus* Poppius, female (JGC); 15 — *Phylocylapus lutheri* Poppius (ZMHU)

Very strongly developed, leaf-shaped foretibiae of the genus *Phylocylapus* (Fig. 16) are probably part of the camouflage strategy.

Legs of Bothriomirini are usually relatively short, only metafemora and metatibiae are somewhat longer. All femora and tibiae in Cylapini and Rhinomirini are strongly elongated, especially metalegs. Both types of legs occur in Fulviini: short, with slightly longer metalegs, as well as the type characteristic of Cylapini-Rhinomirini.

Trichobothria on meso- and metafemora are usually well developed, six on mesofemora and eight on metafemora, which is a primitive character among mirids (SCHUH, 1974). Bothriomirini and some Fulviini sometimes have a reduced number of trichobothria (CHÉROT & GORCZYCA, 1999; Gorczyca in prep.). Apart from trichobothria legs bear also various spines and setae. On the inner surface of metalegs in some Bothriomirini there are serrate blades, sometimes even split, inserted on setae. Metafemora of representatives of the *Euchilofulvius*-complex bear structures which probably function as stridulatory organs (GORCZYCA, 1999b).

The tarsi in Cylapinae, as has frequently been observed, are thin and slender (a synapomorphic character), composed usually of two segments, the last of which can be more or less distinctly divided. Tarsi can be rather short, as in *Euchilofulvius* and *Phyllofulvidius* (Fig. 43E) or strongly elongated, e.g. in *Hemiophthalmocoris* and *Fulvius* (Figs 27D, 33D).

BERGROTH (1925) already called attention to the fact that in some Miridae the terminal tarsal segments are actually inactive (not working) and do not form a true joint; they are "(...) separated from each other not by true articulation but by a more or less long and always oblique suture, which sometimes is so weak that the use of potassium hydrate is necessary to make it distinctly visible".

In most Cylapinae the tarsus is two-segmented, with the second joint separating eutarsus only partly formed. This structure occurs in all the tribes. In some cases only a very weakly marked sulcus perpendicular to the tarsal axis was observed on two-segmented tarsus (e.g. *Fulvius sigwaltae* Gorczyca), but the joint can also be almost complete (e.g. in representatives of the *Rhinomiris*-complex). Sometimes tarsus is two-segmented, without any visible sulcus (*Howefulvius*, *Euchilofulvius*, *Schmitzofulvius*, most representatives of the genus *Fulvius*, some species of *Peritropis*).

SCHMITZ & ŠTYS (1973) called tarsus with a partly formed joint "pseudo-bisegmented" and noticed that the second and third segments were almost fused. Somewhat later GORCZYCA & EYLES (1997) described it as "pseudo-trisegmented", as it consists of two working segments and one "pseudo-joint". Mirids in their nymphal stage have only two tarsal segments, so the second joint linking the second segment and the third one, is not fully developed.

A similar tarsal structure has been observed in some Vanniini and in some Termatophylini (e.g. *Seychellesius* Carvalho), but it has not been mentioned in other representatives of the latter group (CASSIS, 1995).

Pretarsal structure

Claws and related structures have been called the pretarsal structure (SCHUH, 1976). The recently published study of the phylogeny of Arthropoda (KUKALOVA-PECK, 1997, Figs 194c, d) introduces the term posttarsus to refer to the area behind tarsus. The name has been adopted by other authors (ŠOBOTNIK & ŠTYS, 1998) to describe the structures situated beyond the last tarsal segment. Terminological disputes aside, the structures situated behind (before) the last tarsal segment comprise claws with pulvilli, the unguitractor plate and parempodia of various shape. In all Cylapinae claws are very slender, thin, without pulvilli, usually with a subapical tooth, while parempodia are always thin, setiform. Representatives of all tribes other than Cylapini sometimes lack the subapical tooth (*Rhinocylapus*, *Afrobothriomiris*, *Schmitzofulvius*, some representatives of the genus *Fulvius*). It can be assumed that the subapical tooth was reduced in representatives of different tribes independently and that in each group the lack of the structure should be viewed as an autapomorphic character.

Hemelytra

In the tribe Bothriomirini forewings are well developed and of typical mirid structure. Hemelytra are usually strongly punctate and covered with dense setae. No modification in the structure of forewings has yet been observed. Membrane is strongly pilose, bicellulated, the cells are usually distinct, major cell frequently triangular, sometimes with a marked stub.

Hemelytra in Cylapini are also typical, without significant modifications, punctate in Cylapina and smooth in Phylocylapina. Membrane, as in the remaining tribes, is not pilose, with two usually distinct cells.

The structure of forewings is most diverse in Fulviini. They can be typical as in most representatives, or brachypterous as in *Hemiophthalmocoris*

micropterus, *Rhinofulvius albifrons* and *Fulvioaustrus monteithi* Carvalho. Forewings can also be modified to form elytra, e.g. in *Brachyfulvius chapini* Carvalho, *Howefulvius elytratus* Schmitz & Štys and *Afrofulvius heissi* (Fig. 20). Very well developed elytra occur also in the genus *Schizopteromiris*. In many genera of the tribe costal fracture is reduced (*Cylapofulvius*, *Cylapofulvidius*, *Xenocylapus*).

The reduction of membrane, the lack of hindwings and the inability to fly are undoubtedly results of adaptation and indicate high adaptive potential. In the case of species inhabiting small islands the inability to fly may protect them from being carried by the wind. The lack of membrane is an advantage in the case of species living under bark of trees and, in particular, in the litter (probably *Schizopteromiris*) or among leaves (probably *Howefulvius*).

In forms with typically developed hemelytra membrane is usually bicellulated, but minor cell can be weakly marked or not visible (*Euchilofulvius*, *Schmitzofulvius*).

In Rhinomirini hemelytra are usually typical, but there is a marked tendency to reduce cuneus (*Rhinocylapus*), which in some forms is absent (*Rhinomiris*-complex). Embolium is very narrow. Membrane is bicellulated, major cell often bears a distinct stub.

Male genitalia

The structure of male genitalia varies significantly within the subfamily. Aedeagus can be membranous as in Bothriomirini, representatives of the *Rhinomiris*-complex, some Fulviini (e.g. in the genus *Euchilofulvius*) and most Cylapini, and it can be regarded as a plesiomorphic character. In many representatives of Fulviini aedeagus is variously sclerotized, even spiculi can be strongly sclerotized (some species of *Fulvius* and *Peritropis*).

The shape of parameres as well as the ratio of the left and right paramere change as well. In the genus *Carvalhoma* parameres are subequal in shape and size (SCHUH & SCHWARTZ, 1984), while in the genera *Rhinomiris* or *Fulvius* they differ considerably (GORCZYCA & CHÉROT, 1998, Figs 23—36; GORCZYCA, 1998c, Figs 1—2).

Female genitalia

Female genitalia in Cylapinae are very poorly studied. Representatives of *Rhinomiridius* have very well developed posterior wall, without structures E and H, with structures A and B (according to SLATER's terminology, 1950) — depending on the species. Big vaginal rings form a semicircle with a straight posterior margin (GORCZYCA & CHÉROT, 1998). Representatives of the genera *Cylapofulvius* and *Cylapofulvidius* belonging to the tribe Fulviini have strongly modified genitalia (CHÉROT & GORCZYCA, 1999). Sclerotized rings have also been observed in the genus *Carvalhoma* Slater & Gross, where the straight posterior margin has also been noticed (SLATER & GROSS, 1977).

Eggs

Very little is known about both the structure of cylapine eggs and the place of egg-laying. COBBEN (1968) studied the structure of the egg of *Fulvius anthocoroides* (Reuter) and another non-specified representative of the tribe Fulviini from the Orient (COBBEN, 1968, Fig 190A—E). Recently a figure of the egg of *Rhinomiris vicarius* (Walker) has been presented with a strongly elongated processus (GORCZYCA & CHÉROT, 1998, Fig. 37).

Sexual dimorphism

Sexual dimorphism in most Cylapinae is weakly marked. Females are usually somewhat bigger and stronger than males. Considerable differences in size occur in the species *Rhinocylapidius* vittatus (Hsiao), where females are more than twice as big as males in some species. Male representatives of the genus usually have longer rostrum than females, as in some genera of the tribe Fulviini (e.g. *Cylapofulvidius* CHÉROT & GORCZYCA, 1999). Certain groups, e.g. *Rhinofulvius*, *Brachyfulvius* and *Fulvioaustrus*, are known only from brachypterous female specimens and their males may well be macropterous, as in *Corcovadocola*, *Peritropis selene* and other mirids. Some species are known only from brachypterous males, e.g. *Hemiophthalmocoris micropterus*, *Afrofulvius heissi* and *Rewafulvius brachypterus* Carvalho.

Myrmecomorphy

Although myrmecomorphic forms occur in many representatives of Miridae, until recently they have not been found in Cylapinae, which may imply that this group is indeed very old. However, CARVALHO (1986b) described a myrmecomorphic genus *Gulacylapus* from Borneo, which he placed in the tribe Cylapini. On the basis of his description and presented characters, especially the ratio of antennal segments II: III+IV and the structure of pronotum, this genus has presently been included in the tribe Fulviini.

Stridulatory organs

In his analysis of the holotype of *Euchilofulvius tibialis* Poppius, CARVALHO (1980a) first drew attention to the fact that Cylapinae may bear stridulatory organs. Working on a revision of the genus *Euchilofulvius* I described further species of the genus and related genera with expansions on the outer margins of embolium and thickened metafemora (GORCZYCA, 1998a, b, 1999b). Such a structure of wings and femora may suggest that Cylapinae are equipped with stridulatory organs of the "forewing edge — hind femur" type, which is the commonest stridulatory mechanism among Heteroptera (SCHUH & SLATER, 1995).

Biological data

Information on the biology of the subfamily Cylapinae is still very poor and insufficient. Numerous species have been described on the basis of single specimens and many of them are known only from light trap material. Nevertheless, almost all reports published so far and the notes on labels on pinned specimens indicate that they live under bark of rotten logs or on fungi. Some have also been found on fruits, flowers (orchids) and bark of living trees, even on dry logs (KELTON, 1985). One genus, *Carvalhofulvius* Stonedahl & Kovac from Malaysian Peninsula, has been found to live

inside internodes of bamboo shoots (STONEDAHL & KOVAC, 1995). At least several Cylapinae genera live among fallen leaves, e.g. *Howefulvius elytratus* Schmitz & Štys, and in litter, e.g. representatives of *Schizopteromiris* Schuh (SCHUH, 1986b).

The feeding strategy of Cylapinae is also little known, although some authors suspect that they are mycetophagous or predacious (KNIGHT, 1941; CARVALHO & LORENZATO, 1978). It seems that at least some genera and species fall in the former category. Specimens of *Punctifulvius kerzhneri* Schmitz have been found in a great number on fungi (Kerzhner pers. com.), while WHEELER & WHEELER (1994) point out that at least two species of the genus *Cylapus* feed on fungi. Most detailed observation of Cylapinae comes from STONEDAHL & KOVAC (1995): *Carvalhofulvius gigantochloae* Stonedahl & Kovac, a species inhabiting bamboo shoots partly filled with water, was studied from egg to adult form and it was found to keep its stylets in "(...) moist debris which contained fungial hyphae". In the same paper there are rare references to the natural enemies of the species: spiders, both web-building and hunting, and bugs of the genus *Emesopis* (Reduviidae). A nymph which fell on the water surface was attacked by a representative of Gerridae (STONEDAHL & KOVAC, 1995). Unfortunately, the authors make no reference to the process of egg-depositing. The representatives of Cylapinae (Fulviini) are believed not to insert eggs into plant tissues, as is observed in most Miridae, but to deposit them in crevices or grooves of tree bark (SCHMITZ & ŠTYS, 1973).

Probably no other representatives of Miridae feed on fungi, and among other heteropteran families only Aradidae, Termitaphididae and Canopidae have developed this ability (COBBEN, 1978; DOLLING, 1991; SCHUH & SLATER, 1995).

Representatives of the subfamily Isometopinae, which also live under bark of trees and whose biology is also insufficiently studied, appear to be obligatory predators (AKINGBOHUNGBE, 1996). In North America they feed on scale insects, aphids and psocids (WHEELER & HENRY, 1978).

At least some genera of Cylapinae are predacious (CHINA, 1935; SCHMITZ & ŠTYS, 1973; COBBEN, 1978; KELTON, 1985), e.g. representatives of *Fulvius* Stål, which feed on small insects and their eggs. Dr. Pluot-Sigwalt bred some generations of *Fulvius* sp. feeding them with larvae and eggs of butterflies (Pluot-Sigwalt pers. com.).

HERRING (1976) described a new genus and species of Cylapinae, *Trynocoris lawrencei*, and repeated after Dr. John F. Lawrence that this form fed apparently on larvae of Ciidae, minute tree-fungus beetles which lived in fungi growing on trees in Panama forests. Specimens of this species were collected on various genera of fungi and were probably associated with them throughout their life-cycle. Analogically, it can be suspected that some other genera,

although they occur on fungi, may in fact feed on larvae of Coleoptera, Lepidoptera and Diptera which live inside the fungi. Also KELTON (1985) observed that *Fulvius imbecilis* (Say) fed on larvae of Diptera, Coleoptera and other "soft-bodied arthropods".

The fact that some Cylapinae are caught in light traps in large numbers — a phenomenon less frequently observed in predators — seems to indicate that at least some of them are mycetophagous (SCHUH, 1976). Still, their mobility and strongly thickened forefemora in most Fulviini would rather suggest a predatory mode of life, as in Reduviidae and Nabidae.

It should be emphasised that the presented data, however limited, refer to the representatives of the tribes Fulviini and Cylapini. Hardly anything is known about the biology of Rhinomirini, except that they are represented in Baltic amber, which may indicate that they were associated with bark of trees. So far nothing is known about the life, feeding habits and ancestors of Bothriomirini.

Geographical distribution

Students of Miridae emphasise that Cylapinae are limited predominantly to the tropical and subtropical regions (SLATER, 1974; SCHUH, 1976; CARVALHO & LORENZATO, 1978; SCHUH & SLATER, 1995), and indeed most genera and species have been described from these areas.

Bothriomirini are undoubtedly the least studied tribe of Cylapinae. So far they have been regarded as a typically Oriental group, and only *Bothriomiris lugubris* (Poppius) has been reported from Taiwan, Papua New Guinea, New Ireland and New Britain (CARVALHO & LORENZATO, 1978). Other genera and species are known only from the place of description. This study presents the first report of a representative of Bothriomirini, *Afrobothriomiris tanzanicus* gen. nov. sp. n., from East Africa.

Cylapini are known mostly from South America and a few scattered localities in the Indo-Pacific (sensu SCHUH, 1984) and the Seychelles. SLATER (1974) argued that the distribution of Cylapini in the eastern hemisphere was relict and that the group had been replaced by more advanced taxa on continents. He suggested that its occurrence in the Neotropical Region was connected to the fact that this area was more isolated. Slater also pointed to the relict distribution of the genus *Vannius* Distant, which was then assumed

to occur in the Neotropical Region, Madagascar, the Seychelles and Papua New Guinea. However, further investigations have shown that the species reported from these regions represent in fact three distinct genera (CARVALHO & LORENZATO, 1978; GORCZYCA, 1997b), which should not be included in Cylapinae (GORCZYCA, 1997b).

According to the systematic division adopted in the present study, only representatives of the subtribe Phylocylapina occur in the eastern hemisphere; these are the genus *Phylocylapus* Poppius from Sri Lanka and three species of the genus *Cylapomorpha* Poppius known from the Philippines, the Seychelles, the Caroline Islands and Papua New Guinea. *Mycetocylapus* Poppius regarded here as group incertae sedis occurs in the eastern hemisphere and was reported from the Philippines, New Guinea and the Caroline Islands.

The subtribe Cylapina, a consistent, well-defined group of closely related genera, developed probably in the Neotropical Region and is known only from this area. Only *Cylapus tenuicornis* (Say) occurs in North America, where it reaches Wisconsin (SCHUH, 1995), thus being the Neotropical element in the continental fauna of the United States (SLATER, 1974).

The widest range within Cylapinae belongs undoubtedly to Fulviini, which occur in both hemispheres and comprise the greatest number of genera and species. Like in the other tribes of Cylapinae, most species are known from warm climatic zones, still some representatives reach far to the north. The northernmost localities of this group are in East Russia (Primorsk Territory), from where the following species have been described: *Peritropis advena* Kerzhner, *Fulvius ussuriensis* Kerzhner and *Punctifulvius kerzhneri* Schmitz (KERZHNER, 1972; SCHMITZ, 1978). The latter is also known from Southern (LEE et al., 1994) and Northern Korea (GORCZYCA, unpublished data) and Japan (YASUNAGA et al., 1999). One species, *Fulvius oxycarenoides* (Reuter), has been reported from southern Europe (SCHUH, 1995).

The northernmost localities in the western hemisphere are those of *Fulvius imbecilis* (Say), which has been reported from Ontario, Manitoba and Alberta in Canada, and *Fulvius slateri* Wheeler, which is known from Ontario and Quebec (KELTON, 1985). Representatives of the genus *Peritropis* Uhler, *P. saldaeformis* Uhler and *P. husseyi* Knight are known in the United States from Illinois (KNIGHT, 1941). The information about the occurrence of *Peritropis husseyi* in Alaska (GORCZYCA & EYLES, 1997) was obviously a mistake.

The southernmost localities of Fulviini in the southern hemisphere are in Tasmania, South Australia (CASSIS & GROSS, 1995; GORCZYCA, 1997d) and on North Island in New Zealand, from where recently a new species, *Peritropis aotearoae*, has been described (GORCZYCA & EYLES, 1997). In South America the southernmost localities are those of *Fulvius quadristillatus* (Stäl), *Fulvius bruneiceps* Poppius, *Fulvius carumbensis* Carvalho & Costa

and *Peritropis unicolor* Carvalho & Rosas from Paraguay, and *Comefulvius chingonus* Carvalho & Carpintero from Cordoba in Argentina (SCHUH, 1995). It should be remembered, however, that the southern part of this continent remains virtually unstudied.

Fulviini are also the most numerous group in the Afrotropical Region. Up to now 27 species of 9 genera are known from this area, both from the continent and from Madagascar and the Seychelles (SCHUH, 1995; GORCZYCA, 1997a, c, 1998b, c, e, 1999a; GORCZYCA & CHÉROT, 1998).

They are also common on the islands of the Indo-Pacific, from where many species have been described, mainly representatives of the genera *Fulvius* and *Peritropis*. Moreover, a few endemic genera and species have been observed on small islands (CARVALHO, 1972; SCHMITZ & ŠTYS, 1973; SCHUH, 1986b; GORCZYCA, 1999b). The micro-insular character of Fulviini has also been pointed out by SCHMITZ & ŠTYS (1973).

The wide distribution of Fulviini and their presence in Baltic amber may indicate that it is a relatively old group. At the same time, it seems that the expansive development of this tribe began comparatively recently and is still in progress.

Rhinomirini are distributed in the Oriental Region, where they are represented by the greatest number of forms, and in the Afrotropical Region, where only one genus is known, *Rhinomiridius* Poppius. Recently, a representative of this tribe has also been found in Australia (Gorczyca in prep.). There are no reports of the occurrence of Rhinomirini in the Neotropical Region. It seems that the group, once widely distributed in tropical and subtropical forests of the Old World, was limited in range to the subtropical and tropical regions of the eastern hemisphere in the Quaternary as a result of climate cooling.

It is worth emphasising that, as SLATER (1974) has already noticed, relatively few species of Cylapinae are known from the continental Orient. So far Cylapinae have not been reported from continental China and only three representatives of three different genera are known from India (SCHUH, 1995; GORCZYCA, 1998a). It seems, however, that it is a result of insufficient knowledge of fauna of these regions and not of the process of replacement of Cylapinae by more advanced taxa, as Slater suggested.

Only 11 representatives of 9 genera of Cylapinae (all from the tribe Fulviini) are known from continental Australia (CASSIS & GROSS, 1995; GORCZYCA, 1997d, 1999c). *Rhinomiridius bioculatus* Girault, which has recently been marked as nomen dubium (GORCZYCA & CHÉROT, 1998), is not included in this group. It is known, however, that in Australian museums there are many specimens of so far not described representatives of the genera *Fulvius* and *Peritropis* (CASSIS & GROSS, 1995), and of other unknown genera of the subfamily Cylapinae (Cassis pers. com.).

Compared to other regions, New Guinea is rather well studied, largely thanks to CARVALHO & LORENZATO (1978), although their work focuses only on the eastern part of the island — Papua New Guinea. There are no available data on Cylapinae from the western part of the island — Irian Jaya, which belongs to Indonesia.

The fauna of New Caledonia is very poorly known, only 5 genera and 8 species of the subfamily Cylapinae have been reported from this area (SCHUH, 1995; GORCZYCA, 1997e, 1999c).

The skimpy knowledge of Cylapinae of other zoogeographical regions and scarce fossil record make it impossible to propose a hypothesis concerning the actual origin of the group. However, further research on hemipterans of the subfamily Cylapinae, based both on the already obtained material stored in various collections and field study, will certainly advance our knowledge of their distribution and — with the analysis of fossils — their history and relationships.

Fossil record

The subfamily Cylapinae is the most numerous mirid group in Baltic amber (KULICKA et al., 1996). Eight genera and 10 species have been described so far (SCHUH, 1995; HERCZEK & POPOV, 1997, 1998, 1999). Information about its fossil representatives was first given by CARVALHO (1954), but the first Baltic amber specimen of Cylapinae had already been described by GERMAR & BERENDT (1856) within the genus *Phytocoris* — in accordance with then available data.

The fact that Bothriomirini are not represented in Baltic amber is not surprising, as even in recent fauna the group is very poorly studied and among 12 so far described species, 11 forms are known only from the type material and locus typicus. Fossil Cylapini have not been discovered either, *Amberocylapus nigrus* described by CARVALHO & POPOV (1984) belongs apparently (on the basis of presented figures) to Rhinomirini or represents intermediate forms between Fulviini and Rhinomirini. Most of the known inclusions belong to the tribe Rhinomirini, although — judging from descriptions — representatives of Fulviini have also been reported (*Jordanofulvius*, *Oligocoris*, *Germarofulvius*). Some genera described from Baltic amber are undoubtedly connected with Oriental fauna. The genus *Archeofulvius* Carvalho is clearly related to the recent genera *Rhinocylapus* Poppius

and *Rhinocylapidius* Poppius known from the Orient, and distinctly different from the brachypterous genera *Brachyfulvius* Carvalho and *Rhinofulvius* Reuter from the Neotropical and Afrotropical regions respectively, to which it used to be compared (CARVALHO, 1966). Apparently, the only feature that distinguishes *Archeofulvius* from *Rhinocylapus* is the smooth, impunctate body. The recently described genus *Balticofulvius* (HERCZEK & POPOV, 1997) belongs (on the basis of presented figures and photographs) to the tribe Rhinomirini and may represent even the recent Oriental genus *Rhinomiris* Kirkaldy. However, it has nothing in common — except that they belong to the same subfamily — with the genera *Cylapofulvius* Poppius and *Teratofulvius* Poppius, to which it was originally compared. Among others, *Balticofulvius* Herczek & Popov differs from *Archeofulvius* Carvalho in the lack of cuneus and less horizontal head; the same characters (apart from the punctate body) distinguish the Oriental genera *Rhinocylapus* and *Rhinocylapidius* from *Rhinomiris*.

On the basis of the presented descriptions it is difficult to speculate on the systematic position of *Oligocoris bidentata* Jordan (1944) (gen. restor. by HERCZEK & POPOV, 1999) and *Amberofulvius dentatus* Herczek, and to go beyond the general statement that they resemble Fulviini in the shape of the body. Similarly, the photograph and description do not help to determine the actual placement of *Epigonomiris skalskii* Herczek & Popov as, apart from the presence of a subapical tooth on the claw, HERCZEK & POPOV (1998) did not mention any feature that could specify the position of this species within the subfamily Cylapinae.

As has been mentioned before, Cylapinae are the most abundant mirid subfamily in Baltic amber. This is not to say, however, that about 40 million years ago, in the Eocene amber forest, which resembled recent subtropical forests of Asian mountainous regions (Wegierek pers. com.), these hemipterans were the dominant group (KULICKA et al., 1996). It seems that at that time all the recent subfamilies were already represented (POPOV & HERCZEK, 1993) and that the quantitative and qualitative prevalence of Cylapinae in Baltic amber is connected with taphonomic conditions (KRZEMIŃSKA & KRZEMIŃSKI, 1993). The life of the Eocene Cylapinae was probably similar to the life their descendants lead today — hidden under tree bark and in its grooves they were more frequently drowned in resin. This hypothesis is also confirmed by the fact that representatives of Isometopinae, the second most numerous subfamily in Baltic amber, have the same mode of life.

The presence of Cylapinae in amber does not imply, however, that this subfamily should be regarded as primitive — an idea found in SCHUH (1976) and CARVALHO & POPOV (1984) — especially if other mirid imprints are known already from the Upper Jurassic (Malm), about 130 million years ago (BECKER-MIGDISOVA & POPOV, 1963; POPOV & HERCZEK, 1998).

Phylogenetic relationships within the subfamily Cylapinae

So far two schemes have been used in the classification of Cylapinae: Poppius' and Carvalho's. It was Poppius who first presented a general analysis of characters of Cylapinae (POPPIUS, 1909) and regarded long, linear antennae as the feature common to all genera within the tribe Cylapini, regardless of the position of the head — horizontal as in *Rhinocylapus*, or vertical as in *Cylapus* Say. Genera with short antennae were thus included in the tribe Fulviini. Of course, at that time Bothriomirini were not recognized as a separate group within Cylapinae.

CARVALHO (1952b, 1955a, 1957) presented a classification which has long been unquestioned and generally accepted. The tribes Cylapini and Fulviini were distinguished on the basis of the position of the head, regardless of other characters, e.g. the length of antennae. According to this model a single tribe included e.g. the genera *Peritropis* Uhler and *Rhinocylapus* Poppius. As has already been mentioned, Carvalho was not always consistent in the application of criteria he himself had adopted and many genera which should have been placed within Fulviini were included in Cylapini.

As a result of cladistic analysis I have arrived at a classification which may be considered intermediate between the two outlined above, but approaches the model presented by Poppius. The genera *Rhinocylapus* and *Cylapus* are more closely related to each other than any of them to e.g. *Fulvius* (Fig. 16).

Characters for the analysis at the tribal and subtribal levels within Cylapinae

1. tarsi: usually relatively short (0), slim, elongated (1);
2. claws: relatively short (0), slim, elongated (1);
3. membrane: smooth (0), pilose (1);
4. head: short (0), distinctly elongated (1);
5. pronotum: massive (0), not massive (1);
6. body: usually stout (0), usually slim (1);
7. mesoscutum: partly covered (0), exposed (1);
8. rostrum: short (0), long (1);
9. pronotal collar: absent (0), present (1);
10. legs: cursorial (0), raptorial (1);
11. antennal segments: second the longest (0), third and fourth the longest (1);
12. hemelytra: always macropterous (0), brachypterous forms exist (1);
13. aedeagus: mostly membranous (0), with sclerotized spiculi (1);

14. distribution: limited (0), widely distributed (1);
15. head: elongated vertically (0), elongated horizontally (1);
16. pronotum: massive (0), narrow, elongated (1), broad and short (2);
17. cuneus: well developed (0), reduced (1);
18. rostrum: relatively thin (0), usually thickened (1);
19. body: punctate (0), smooth (1);
20. vertex: convex or flat (0), excavated (1).

The characters were polarised using Isometopinae for the out-group comparison (Table 2).

Table 2

Character state matrix for the subfamily Cylapinae and its out-group

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Isometopinae	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0
Bothriomirini	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cylapina	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0	1
Phylocylapina	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	0
Fulviini	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	?	0
Rhinomirini	1	1	0	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0	?	0

As a result of the analysis of 20 characters with the use of option "ie-" of Hennig86 (version 1.5) programme (FARRIS, 1988), a single cladogram was obtained (Fig. 16), 23 steps long, with a consistency index (ci) = 86 and retention index (ri) = 78. When the states were treated as unordered and unweighted (option "cc-") the same results were obtained.

The analysis breaks Cylapinae into four tribes which form three distinct developmental lineages: Bothriomirini, Cylapini-Rhinomirini and Fulviini. The first developmental lineage is represented by Bothriomirini (pilose membrane as a synapomorphic character), which are equipped with a number of plesiomorphic characters, e.g. short, wide head; convex, deeply punctate body covered with dense setae; lack of pronotal collar; stout, short rostrum; partly covered mesoscutum. Bothriomirini are a sister group of the other tribes (Fig. 16). The synapomorphic characters shared by Bothriomirini with other Cylapinae are slender, elongated claws and thin, elongated tarsus with partly divided eutarsus.

The tribes Cylapini and Rhinomirini constitute another developmental lineage. They are distinguished on the basis of elongated body, strongly elongated head and long, linear antennae, often longer than the body,

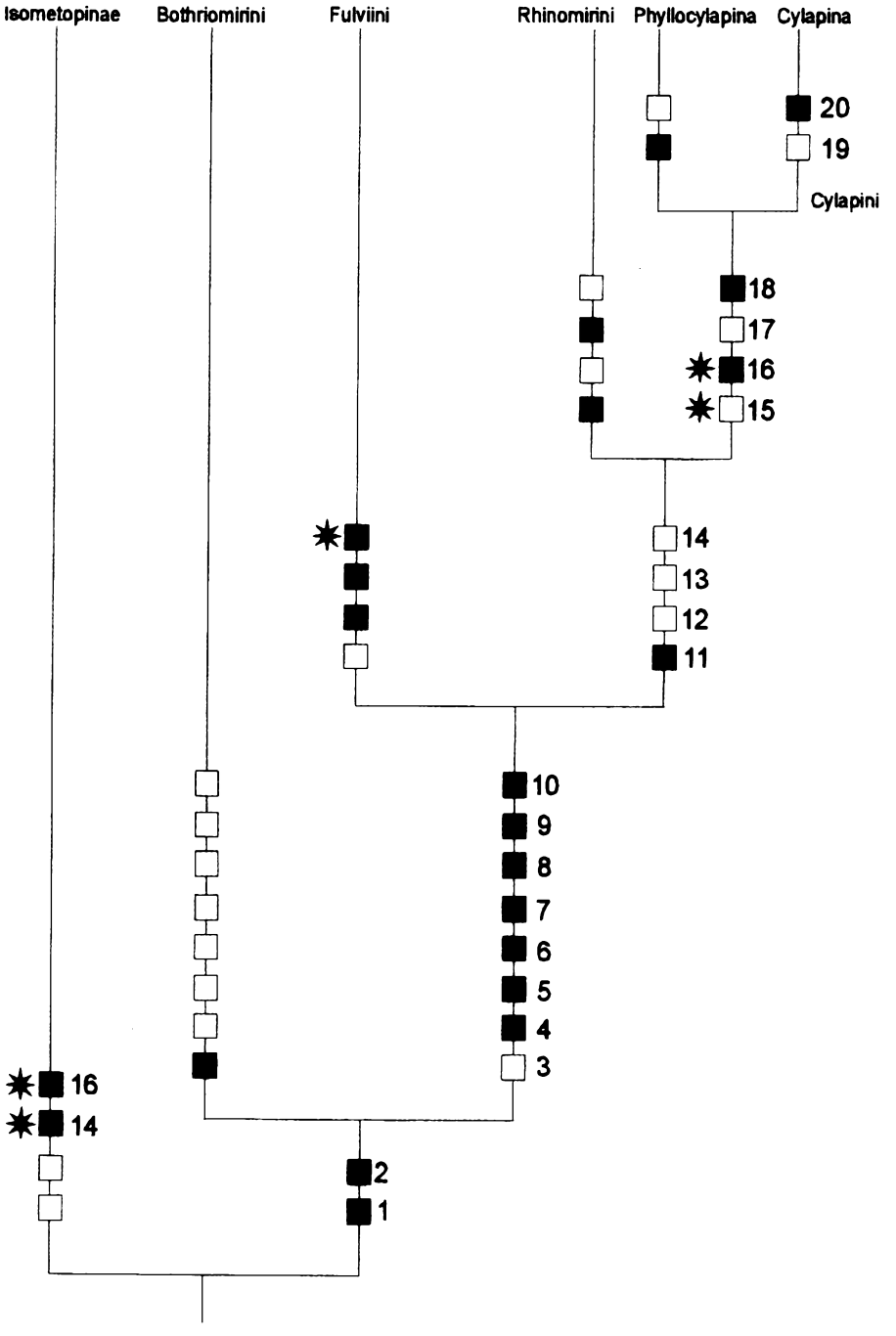


Fig. 16. Phylogenetic tree of the tribes of Cylapinae, with Isometopinae as an out-group, based on the tree obtained from the computer programme Clados. Black squares — synapomorphic states; homoplasies are marked with an asterix

with segments III and IV the longest. The synapomorphies of the clade Cylapini-Rhinomirini-Fulviini include the presence of the apical ring, exposed mesoscutum and elongated rostrum (Fig. 16). The clade Cylapini-Rhinomirini splits into Cylapini with the head elongated dorsoventrally (plesiomorphies) and thick rostrum on the one hand, and Rhinomirini with the head elongated horizontally, reduced cuneus (apomorphies) and thin, elongated rostrum on the other. Within Rhinomirini two groups of genera can be distinguished: the *Rhinomiris*-complex with smooth or only wrinkled body, first rostral segment not reaching forecoxae, cuneus absent, and the *Rhinocylapus*-complex with distinctly punctate body, first rostral segment reaching beyond forecoxae, small cuneus.

The tribe Cylapini splits into two sister groups: neotropical Cylapina with vertex deeply incised, protruding eyes (apomorphies) and punctate pronotum (plesiomorphy), and Phylocylapina — a relict group distributed on the Philippines, other Indo-Pacific islands and the Seychelles. Characteristic features of this subtribe include elevated vertex, sometimes weakly sulcate, and smooth pronotum (apomorphy).

It seems that the representatives of the subtribe Cylapina are the New World's ecological equivalent of the Old World's Rhinomirini.

The third, undoubtedly most derived developmental lineage of Cylapinae are Fulviini. They manifest the strongest variability of characters, are represented by the largest number of genera and species, are most widely distributed and have great adaptive abilities (brachypterism, formation of elytra, small body size, colonisation of different habitats, myrmecomorphy) which account for their distribution. Other apomorphies of this group include: sclerotized parts of aedeagus, modified antennae and — in many genera — bisegmented tarsus without traces of the eutarsal joint. The most unusual genus among Fulviini is *Hemiophthalmocoris* Poppius. It has a spine at the base of the claw and lacks the subapical tooth. Both features can be treated as autapomorphies. Other Fulviini seem to split into four main developmental lineages: *Cylapofulvius*-complex, *Peritropis*-complex, *Teratofulvius*-complex and *Fulvius*-complex.

A survey of the tribes and world genera within the subfamily Cylapinae

Subfamily Cylapinae Kirkaldy

Type genus of family: *Cylapus* Say, 1832
Cylaparia Kirkaldy, 1903: 203

The subfamily Cylapinae is traditionally distinguished from the other subfamilies of Miridae Hahn by thin tarsi, lack of pulvilii, setiform parempodia and slender claws usually toothed subapically. Aedeagus is membranous or with sclerotized spiculi, head elongated vertically or horizontally, hemelytra usually well developed. Three tribes, Bothriomirini Kirkaldy, Cylapini Kirkaldy, Fulviini Uhler, were recognized within the subfamily by CARVALHO (1957), and a new tribe, Rhinomirini, is introduced in the present paper.

KEY TO THE TRIBES OF THE SUBFAMILY CYLAPINAE

1. Body stout, oval, with deep punctation, head short, antennae short, covered with dense, long setae, membrane pilose ..... Bothriomirini Kirkaldy
— Body elongate or elongate oval, head vertical or horizontal, membrane not pilose 2
2. Antennae long, longer than body, third and fourth segments the longest 3
— Antennae shorter than body, second segment the longest ..... Fulviini Uhler
3. Head horizontal ..... Rhinomirini new tribe
— Head vertical ..... Cylapini Kirkaldy

Tribe Bothriomirini Kirkaldy

Type genus of tribe: *Bothriomiris* Kirkaldy, 1902

Diagnosis: Body broad, stout, usually heavily punctate. Head broad, very short in top view, rostrum stout, short, usually reaching mesocoxae, second

antennal segment the longest, sometimes flattened and thickened. Pronotum broad, mesoscutum partly covered by pronotum, ostiolar peritreme distinct, relatively large, sometimes with a bulb-like process. Membrane pilose, tarsi two-segmented, second segment usually divided, claws with or without subapical tooth. Aedeagus membranous, parameres relatively small.

Within the tribes of Cylapinae only Bothriomirini have not been reported from the Afrotropical Region so far and it has been assumed that the representatives of this tribe occur only in the Oriental Region and Papua New Guinea (CARVALHO & LORENZATO, 1978). During my visit in the Zoological Museum in Copenhagen I found a representative of Bothriomirini collected in Tanzania. It represents a new genus and species whose descriptions are given below.

List of the genera

Afrobothriomiris gen. nov. — Afrotropical
Bakeriola Bergroth — Oriental
Bothriomiris Kirkaldy — Oriental and Australian
Dashymenia Poppius — Oriental
Dashymeniella Poppius — Oriental
Leprocapsus Poppius — Oriental

Tribe Cylapini Kirkaldy

Type genus: *Cylapus* Say, 1832

Diagnosis: Body elongate, often flattened, punctate or smooth, head vertical (Figs 9, 11) or elongated dorsoventrally, length of head in top view more than twice as short as its width, antennae long, usually longer than body, first antennal segment short, often thickened, remaining segments long and thin, gradually tapering towards the end (Fig. 19). Tarsi very long, thin, claws slender, usually toothed subapically.

Distribution. Representatives of the tribe are known mainly from the Neotropical Region, only two genera (*Cylapomorpha* Poppius, *Phylocylapus* Poppius) are known from the Indo-Pacific Region (in the meaning of SCHUH, 1984), one of them — *Cylapomorpha* Poppius — is represented also in the Afrotropical Region, Seychelloise Province.

I propose to divide this tribe into two subtribes: Cylapina, which include all Neotropical genera, and a new subtribe Phylocylapina, grouping the other genera.

KEY TO THE SUBTRIBES

1. Body punctate, eyes very prominent, distinctly projecting upwards, vertex divided by a deep, longitudinal sulcus ..... Cylapina Kirkaldy (Neotropical)
type genus: *Cylapus* Say, 1832
— Body smooth, vertex not divided, sometimes with a slightly marked, longitudinal sulcus (Indo-Pacific) ..... Phylocylapina subtribe nov.
type genus: *Phylocylapus* Poppius, 1913 — present designation

Subtribe Cylapina Kirkaldy

List of the genera
Amapacylapus Carvalho & Fontes
Corcovadocola Carvalho
Cylapinus Carvalho
Cylapocerus Carvalho & Fontes
Cylapoides Carvalho
Cylapus Say
Duckecylapus Carvalho
Microcylapus Carvalho
Peltidocylapus Carvalho
Valdasoides Carvalho
Valdasus Stål

Subtribe Phylocylapina, new subtribe

List of the genera
Cylapomorpha Poppius — Indo-Pacific
Phylocylapus Poppius — Oriental

Tribe Fulviini Uhler

Type genus: *Fulvius*, Stål, 1862

Diagnosis: Small and medium-size insects, body elongate or elongate oval, head horizontal, elongate, slightly shorter or slightly longer than wide, antennae inserted on tubercles, shorter than body, second segment the longest and the thickest, third and fourth segments thin, usually short. Rostrum thin, long, reaching at least beyond mesofemora, frequently longer, mesoscutum usually well exposed, sometimes partly covered by pronotum. Hemelytra normally well developed, but brachypterous forms also exist, macropterous forms usually with well marked costal fracture, membrane two-celled or single-celled. Forecoxae and forefemora enlarged, tarsi thin, two-segmented, second segment often divided, claws very often toothed subapically.

List of the genera

**Adcylapocoris* Carvalho — Neotropical
Afrofulvius, new genus — Afrotropical
Bironiella Poppius — Australian
Brachyfulvius Carvalho — Neotropical
Carvalhofulvius Stonedahl & Kovac — Oriental
Carvalhoma Slater & Gross — Australian
Ceratofulvius Reuter — Australian
Comefulvius Carvalho & Carpineto — Neotropical
**Cylapocorella* Carvalho — Neotropical
**Cylapocoris* Carvalho — Neotropical
**Cylapocorisca* Carvalho — Neotropical
**Cylapocoroides* Carvalho — Neotropical
Cylapofulvius Poppius — Australian
Cylapofulvidius Chérot & Gorczyca — Oriental
Euchilofulvius Poppius — Oriental
subgen. *Euchilofulvius* s. str. Poppius
subgen. *Lepidofulvius* Poppius
Euchilofulviella Gorczyca — Fiji
Faliscus Distant — New Caledonia
Fulvidius Poppius — Oriental
Fulviella Carvalho — Australian
Fulvioaustrus Carvalho — Australian
Fulvius Stål — Cosmopolitan
**Gulacylapus* Carvalho — Oriental
Hemiophthalmocoris Poppius — Afrotropical
Howefulvius Schmitz & Štys — Australian
Incafulvius Carvalho — Neotropical
Lygaeoscytus Reuter — Australian
Microfulvius Poppius — Afrotropical
Mimofulvius Schmitz — Oriental
Peritropella Carvalho — Afrotropical
Peritropis Uhler — Cosmopolitan
Peritropisca Carvalho & Lorenzato — Australian
Peritropoides Carvalho — Neotropical
Phyllofulvioides, new genus — Afrotropical
Phyllofulvius Carvalho — Australian
Punctifulvius Schmitz — Manchurian
Rewafulvius Carvalho — Fiji
Rhinofulvius Reuter — Afrotropical
Rhinophrus Hsiao — Oriental
Schmitzofulvius Gorczyca — Afrotropical
Schizopteromiris Schuh — Australian
Teratofulvioides Carvalho & Lorenzato — Australian
Teratofulvius Poppius — Oriental
Trynocoris Herring — Neotropical
**Tucuruisca* Carvalho — Neotropical
Umboiella Carvalho — Australian
Xenocylapus Bergroth — Neotropical
Xenocylapidius Gorczyca — Australian
Amberofulvius Herczek — Fossil (Baltic amber)
Jordanofulvius Carvalho — Fossil (Baltic amber)
Oligocoris Jordan — Fossil (Baltic amber)
Germarofulvius Herczek & Popov — Fossil (Baltic amber)

The genera originally placed within Cylapini are marked with an asterix.

Rhinomirini new tribe

Type genus of tribe: *Rhinomiris* Kirkaldy, 1902

Diagnosis: Body elongate, punctate or smooth, head horizontal or subhorizontal (Figs 5, 12, 13), the embolar part usually very narrow, distinct and very deep propleural suture, pronotal collar present, fused calli, the anterior lobe of pronotum raised, more or less raised scutellum, well exposed mesoscutum with an oblique carina, very long, thin, linear antennae, longer than the body, III and IV segments the longest, very long rostrum reaching at least the middle of abdomen, very long legs, tarsi with distinctly divided second segment, sometimes apparently three-segmented (GORCZYCA & CHÉROT, 1998, Figs 1—3), first tarsal segment very long, much longer than second and third together, second segment almost twice as short as the third, claws usually toothed subapically, hemelytra well developed, punctate, with swollen spots and patches, or only pale patches, membrane with two cells (smaller one sometimes hardly visible).

KEY TO THE GROUPS OF RHINOMIRINI

1. Body punctate, cuneus present, first segment of rostrum very long reaching at least forecoxae, claws without subapical tooth .... *Rhinocylapus*-group (Oriental)
— Body smooth, cuneus absent, first segment of rostrum much shorter, claws with a distinct subapical tooth .... *Rhinomiris*-group (Afrotropical and Oriental)

KEY TO THE GENERA OF *RHINOMIRIS*-GROUP

1. Vertex with two raised tubercles, first antennal segment very short, shorter than the width of head, clavus and corium punctate .... *Lundbladiolla* (Oriental)
— Vertex without raised tubercles, clavus and corium not punctate 2
2. Body covered with pale or transparent patches, first antennal segment shorter than the width of head ..... *Rhinomiridius* (Afrotropical)
— Body covered with swollen spots and patches, first antennal segment longer than the width of head ..... *Rhinomiris* (Oriental)

List of the genera of Rhinomirini

Lundbladiolla Carvalho — Oriental
Rhinomiridius Poppius — Afrotropical
Rhinomiris Poppius — Oriental
Rhinocylapus Poppius — Oriental
Rhinocylapidius Poppius — Oriental
Proamblia Bergroth — Oriental

Archeofulvius Carvalho — Fossil (Baltic amber)
Ambercylapus Carvalho & Popov — Fossil (Baltic amber)
Balticofulvius Herczek & Popov — Fossil (Baltic amber)

Incertae sedis genera

Mycetocylapus Poppius — Oriental

According to the original description (POPPIUS, 1914) and later redescriptions (CARVALHO, 1956; CARVALHO & LORENZATO, 1978), this genus has a unique set of characters which do not allow to place it in any of the recognized tribes.

Epigonomiris Herczek & Popov — Fossil (Baltic amber)

According to the photograph and description given by the authors (HERCZEK & POPOV, 1998) it is not possible to determine the actual placement of the genus.

A revision of Cylapinae of the Afrotropical Region

Study area

Fig. 17. Study area

The study area is presented in Fig. 17 and includes Africa south of the Sahara, Madagascar and adjacent islands in the Indian Ocean, as well as Socorta and the southern part of the Arabian Peninsula. This area, referred to as the Ethiopian (= Afrotropical) Region by KERZHNER (1981), almost overlaps with the Ethiopian Regions presented by Sclater, Wallace and Darlington (after NELSON & PLATNICK, 1981). The Afrotropical Region is divided into the following subregions: East Africa, West Africa, South Africa and Madagascar, according to Wallace's zoogeographical subregions (WALLACE after UDVARDY, 1978).

Taxonomy

Check-list of the African genera and species of Cylapinae

Tribe Bothriomirini
Afrobothriomiris, new genus
    tanzanicus, new species
Tribe Fulviini
Afrofulvius, new genus
    heissi, new species
Fulvius Stål
    anthocoroides (Reuter)
    dallastai Gorczyca
    discifer Reuter
    dolobratus Distant
    flaveolus Gorczyca
    kajae, new species
    kerzhneri, new species
    major Schmitz
    sp. Pluot-Sigwalt & Schmitz (in prep.)
    pictus pictus Distant
    pictus nigritus, new subspecies
    subnitens Poppius
    tanzaniae, new species
    unicolor Poppius
    webbi, new species
Tribe Cylapini
Cylapomorpha Poppius
    migratoria (Distant)
Phyllofulvidius, new genus
    africanus, new species
Rhinofulvius Reuter
    albifrons (Reuter)
Schmitzofulvius Gorczyca
    bigibber Gorczyca
    niger Gorczyca
Microfulvius Poppius
    brevicollis Poppius
Peritropella Carvalho
    malgachne Carvalho
    vandoni, new species
Peritropis Uhler
    africana Poppius
    armillaria Schmitz
    botswanica, new species
    crassicornis Poppius
    granulosa, new species
    kerzhneri, new species
    linnavuorii, new species

Hemiophthalmocoris Poppius
abbreviatus, new species
asthenops, new species
buchaczi, new species
caligans Schmitz
convexus, new species
frontalis, new species
micropterus, new species
longirostris Schmitz
lugubris Poppius
minor, new species
parvulus, new species
Tribe Rhinomirini
Rhinomiridius Poppius
aethiopicus Poppius
dentatus Chérot & Gorczyca
donisi Chérot & Gorczyca
ooguensis Odhiambo
nilotica, new species
macrotricha, new species
maculicornis Linnavuori & Al-Safadi
maculisparsa, new species
magna, new species
malawiana, new species
minuta, new species
obscurella Gorczyca
pierrardi, new species
rostrata, new species
rugulosa, new species
rynskii, new species
schaeferi, new species
schmitzi, new species
selene Linnavuori
smreczynskii Gorczyca
tanzanica Gorczyca

Subfamily Cylapinae Kirkaldy

Tribe Bothriomirini Kirkaldy

Afrobothriomiris gen. nov.

Type species: *Afrobothriomiris tanzanicus* sp. nov.

Diagnosis: Similar in size to the Oriental genus *Dashymeniella* Poppius but differs from the latter in body covered with dense setae, relatively narrow pronotum, pointed clypeus and narrower vertex; gender masculine.

Description: Body elongated, oval, deeply punctate, covered with dense, semi-erect setae. Head triangular in top view, eyes relatively large, prominent, clypeus thin, with a small hump (Fig. 18A), pointed. Antenniferous tubercle relatively small, contiguous with the margin of eye, antennae covered with dense, long, semi-erect setae, second segment distinctly thickened, third and fourth antennal segments thin, the first one the shortest. Rostrum reaching mesocoxae.

Pronotal collar invisible, pronotum relatively long, anterior margin of pronotum narrow, anterior lobe only slightly separated, posterior margin of

pronotum weakly rounded. Mesoscutum almost entirely covered by pronotum, scutellum separated from mesoscutum by a distinct, transverse furrow.

Hemelytra well developed, deeply punctate, covered with dense, long, semi-erect setae, costal fracture distinct, venation well visible.

Metafemora bearing six or seven long trichobothria, tarsi two-segmented, second segment divided, long, almost twice as long as the first, claws without a subapical tooth (Fig. 18E). Ostiolar peritreme distinct with a large bulb-like processus (Fig. 18D).

Afrobothriomiris tanzanicus sp. nov.

Type material

Holotype: Tanzania, East Usambara Amani, 1000 m, 1. ii. 1977; Zool. Mus. Copenhagen, H. Enghoff, O. Lomholdt, O. Martin leg.; Bothriomirini, Det. by G. Stonedahl. In ZMC.

Diagnosis: Only one known representative of the genus.

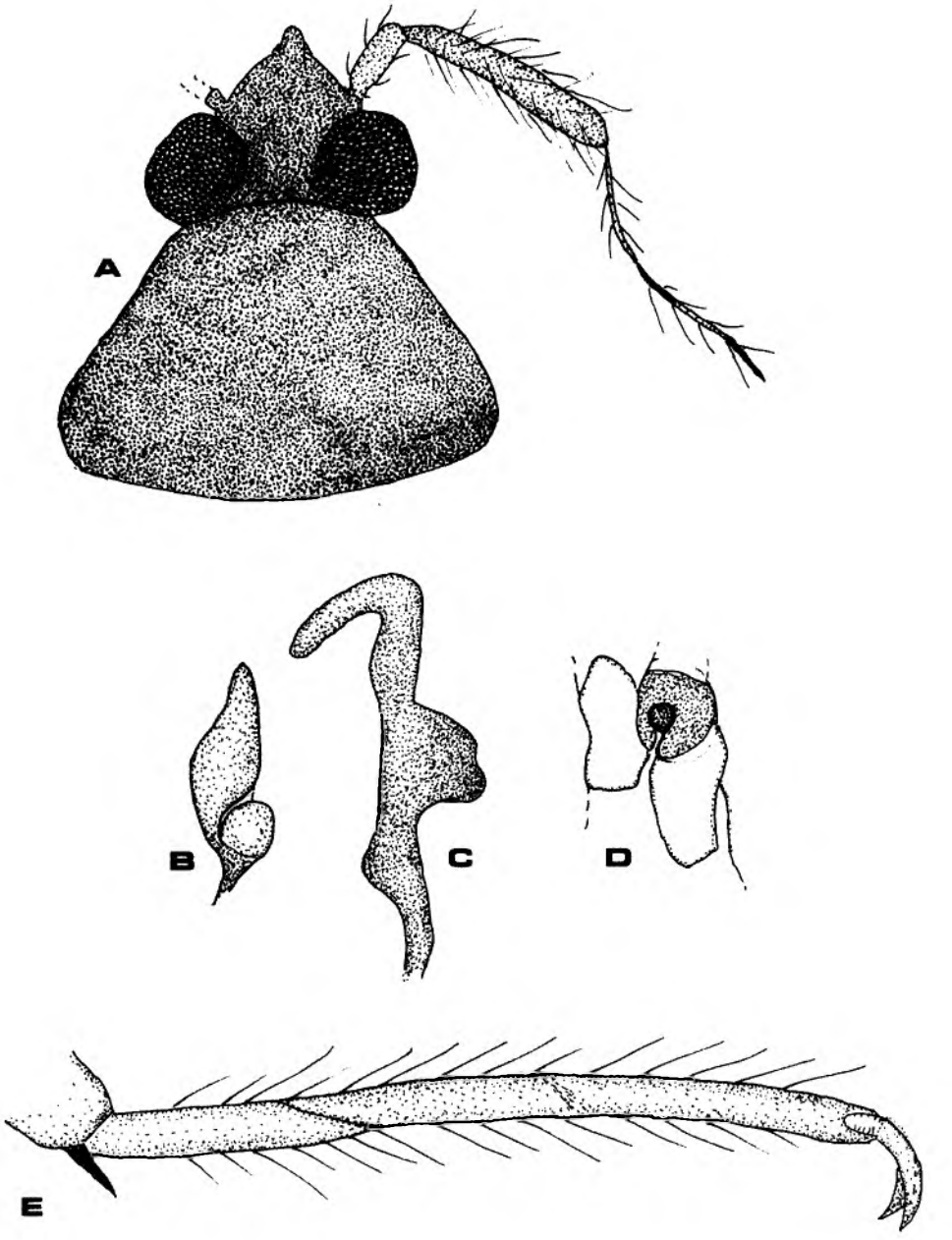
Description: Male (female unknown). Body broad, elongate oval, dark brown, shining, covered with dense, pale setae, length of the body 3.60 mm, width 1.70 mm. Head brown, covered with pale setae, length of head (in top view) 0.52 mm, width 0.84 mm, diameter of eye 0.27 mm. First antennal segment pale brown, with a red, longitudinal stripe on the inner part, second segment thin and obscured at base, then rapidly thickened (Fig. 18A), pale orange, covered with pale and dark setae. Third and fourth segments very thin (Fig. 18A), the third dark, covered with pale setae, the fourth dark brown at base and apex, the remaining part white. Length of antennal segments in mm: 0.34: 0.75: 0.31: 0.58.

Pronotum, scutellum and mesoscutum unicoloured, brown. Length of pronotum 0.91 mm, anterior margin 0.65 mm, lateral margins 0.78 mm, posterior margin 1.38 mm.

Hemelytra unicoloured, brown, a little paler and slightly tinged with red above membrane and cuneus, covered with pale setae. Membrane grey with brown patches contiguous with major cell, venation distinct, pale, minor cell very small.

Underside of the body chestnut, shining, coxae, trochanters and femora brown, the apical part of femora and tibiae paler, the apical part of tibiae orange, tarsi obscured. Aedeagus membranous, right paramere small, left paramere curved (Figs 18B—C).

Distribution: Tanzania.



Figs 18A—F. *Afrobothriomiris tanzanicus* gen. nov., sp. nov., holotype; A — head and pronotum in top view, B — right paramere, C — left paramere, D — ostiolar peritreme, E — metatarsi

Tribe Cylapini Kirkaldy

Phylocylapina new subtribe

Cylapomorpha Poppius

Type species: *Cylapomorpha gracilicornis* Poppius, 1914 (by monotypy)

Cylapomorpha Poppius, 1914: 124
Cylapomorpha: Carvalho, 1956: 15, 1957: 29; Carvalho & Lorenzato, 1978: 123; Schuh, 1995: 23

Diagnosis: This genus is close to the oriental genus *Phylocylapus* Poppius, but foretibiae are not flattened.

Redescription: Body elongated, smooth, covered with short, adpressed setae, head very short, eyes relatively large, antennae longer than body, inserted on distinct tubercles, contiguous with the margins of eyes, first antennal segment thickened in the middle, shorter than the width of vertex (Fig. 19), mandibular plate elongated, rostrum long and thick.

Pronotal collar present, pronotum very short, flat, anterior lobe short, only slightly raised, posterior margin sinuate. Mesoscutum well exposed, with carina on sides, scutellum only slightly convex.

Hemelytra well developed, costal fracture distinct, embolium narrow, membrane two-celled, major cell rounded.

Legs long and slender, meso- and metafemora bearing long trichobothria in the apical part, tarsi long, two-segmented, second segment divided, claws toothed subapically.

Distribution: Known from the Philippines, the Caroline Islands, New Guinea and the Seychelle Islands.

Cylapomorpha migratoria (Distant)

Cylapus migratorius Distant, 1913: 176
Cylapomorpha migratorius: Carvalho, 1957: 29
Cylapomorpha migratoria: Steyskal, 1973: 206; Schuh, 1995: 23

Type material examined

Lectotype (female) — present designation: Type [circular label with red margin]; holotypus [pink label]; Silhouette, 08, Seychelles Exp.; Seychelle Island, Percy Sladen Trust Expedition. 1911—497; *Cylapus migratorius* n. sp. Distant [handwritten]; *Cylapomorpha migratoria* (Dist.) Carvalho, 1957 [handwritten]; VIII — 1908, *Stevensonia pulica*, 1500 ft. 103. [handwritten]; paralectotype (female): paratype [circular label

with yellow margin]; paratypus [pink label]; Silhouette, 08, Seychelles Exp.; Seychelle Island, Percy Sladen Trust Expedition. 1911—497; *Cylapomorpha migratoria* (Dist.) Carvalho, 1957 [handwritten]. Both housed in BMNH.

Other material examined

Male: Seychellen, Mahe- Glacis Laubholzrinde, XI — 94, Heiss; female: Seychellen, Mahe, Sans Souci Rd., XI — 94, Heiss; (JGC).

Redescription: Male. Body small, chestnut, with paler patches, length of the body 3.38 mm, width 1.10 mm. Head yellow, darker on vertex, red on sides, covered with short, protruding setae, vertex sulcate, frons, clypeus and mandibular plate yellow with small darker patches, maxillary plate and gula red. Length of head 0.28 mm, width 0.72, diameter of eye 0.26 mm. Antenniferous tubercles pale, first antennal segment pale at base, then chestnut, second segment pale at base, then brown, covered with short setae, remaining segments dark brown, slightly paler and swollen at base, covered with dense, dark, short setae. Length of antennal segments in mm: 0.20: 1.10: 2.10: 1.0 (broken?). Rostrum reaching abdomen, first and second segments red, third and fourth brown, the segments not well visible in the examined specimens.

Pronotal collar brown, pronotum chestnut, anterior lobe of pronotum slightly raised, posterior lobe with five longitudinal, paler patches, the lateral margins and humeral angles elevated, length of pronotum 0.39 mm, length of anterior margin 0.65 mm, lateral margins 0.36 mm, posterior margin 1.10 mm.

Hemelytra brown with red and chestnut areas, covered with numerous paler, silvery patches. Clavus brown, pale at base with a large, red patch in the middle, embolium dark red with a longitudinal row of pale patches, cuneus pale at base, dark red on the apex. Membrane dark grey with large, paler patches, venation dark.

Underside of the body dark red to almost black, covered with dense, long, shining setae. Forecoxae dark, meso- and metacoxae paler, femora brownish-red, pale in the middle and with a pale ring in the apical part, tibiae brown, paler at apex, tarsi pale brown.

Female similar to male but bigger, femora without a pale ring in the apical part, membrane venation dark or red, length of the body 3.80—4.0 mm, width 1.41—1.45 mm, length of head 0.28 mm, width 1.0 mm, diameter of eye 0.26 mm. Length of antennal segments in mm: 0.20: 1.24: 2.54: 0.88(?).

Distribution: The Seychelle Islands.

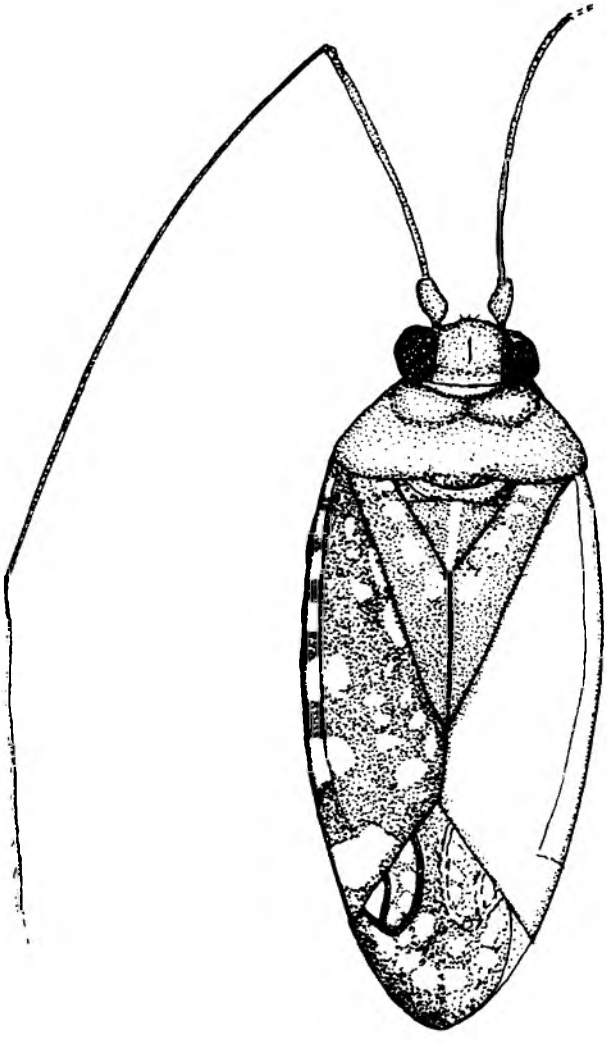


Fig. 19. *Cylapomorha migratoria* (Distant), dorsal habitus

Tribe Fulviini Uhler

KEY TO THE GENERA OF FULVIINI OF THE AFROTROPICAL REGION

1. Second antennal segment distinctly flattened, in the middle much wider than vertex ..... *Phyllofulvidius* gen. nov.
   Second antennal segment not flattened, its diameter more than twice as short as the width of vertex 2

2. First segment of rostrum shorter than head in side view, length of pronotum less than twice as short as its posterior margin, mesoscutum not exposed 3
— First segment of rostrum as long as head in side view or longer, pronotum at least twice as short as its posterior margin 4
3. Pronotal collar distinct ..... *Afrofulvius* gen. nov.
— Pronotal collar absent ..... *Rhinofulvius* Reuter
4. Body usually elongate oval, embolium usually wide, pronotum very broad and short, lateral margins of pronotum usually elevated .... *Peritropis* Uhler
— Body usually elongate, if not then lateral margins of pronotum not elevated 5
5. Body almost unicoloured, pale brown to almost black, cuneus long and thin, usually as broad as embolium, claws not toothed subapically but with a long, sharp spine at their base ..... *Hemiophthalmocoris* Poppius
— Body rarely unicoloured, cuneus usually distinctly broader than embolium, claws usually toothed subapically, without a long, sharp spine at base of claws 6
6. Lateral margins of pronotum sharp, elevated .... *Microfulvius* Poppius
— Lateral margins of pronotum not elevated ..... *Fulvius* Stål

Afrofulvius gen. nov.

Type species: *Afrofulvius heissi* sp. nov.

Diagnosis: The new genus is very similar in general appearance to *Rewafulvius* Carvalho described from Fiji (Carvalho, 1972), but differs from it in shorter and thicker first antennal segment, mesoscutum partly covered by pronotum, and two-segmented tarsi. Its forewings without membrane form elytra and are not shortened, but extend well beyond the end of abdomen. The new genus has also shining scale-like setae on elytra. Masculine.

Description: Body small, elongated, covered with shining, scale-like setae, antennae inserted on tubercles removed from the margins of eye, eyes relatively small, slightly removed from pronotal collar, not reaching gula below. Head elongated, vertex without a longitudinal sulcus in the middle. Rostrum thin, first segment shorter than the length of head in side view.

Pronotum with a distinct pronotal collar, anterior lobe of pronotum with raised calli, humeral angles elevated, lateral margins rounded, with a deep incision in the distal part. Mesoscutum partly covered by pronotum.

Pronotum with a distinct pronotal collar, anterior lobe of pronotum with raised calli, humeral angles elevated, lateral margins rounded, with a deep incision in the distal part. Mesoscutum partly covered by pronotum.

Elytra well developed, long, distinctly extended beyond the end of abdomen, rounded in the apical part (Fig. 20).

Legs covered with dense, short, scale-like setae, metafemora bearing a few long trichobothria in the distal part. Tarsi two-segmented, claws thin and slender, toothed subapically.

Afrofulvius heissi sp. nov.

Type material

Holotype: Rwanda — Ostafrica, Prov. Cyangugu, Nyakabuye, Regenwald, 18—25. 4. 1985, Muhle; Collection, E. Heiss, Innsbruck. (SU).

Etymology: This species is named in honour of Dr. Ernst Heiss (Tiroler Landesmuseum, Innsbruck, Austria).

Diagnosis: See the genus.

Description: Male (female unknown). Body small, brown with paler spots and patches, covered with white, scale-like setae, length of the body 2.65 mm, width 1.17 mm. Head brown with paler patches on vertex and frons. Length of head 0.50 mm, width 0.54 mm, diameter of eye 0.13 mm. Antennae unicoloured, dark brown, covered with short, dense, dark setae. First and second segments gradually thickened towards the apex, third segment very thin. Length of antennal segments in mm: 0.36: 0.85: 0.26 (fourth segments broken in the examined specimen). Rostrum reaching the middle of abdomen, brown.

Pronotum dark brown with paler patches on the callar area. Length of pronotum 0.41 mm, length of anterior margin 0.39 mm, lateral margins 0.52 mm, posterior margin 0.78 mm. Mesoscutum and scutellum dark brown, scutellum pale at apex.

Elytra brown, with paler areas, covered with dense, white, scale-like setae, with a big pale patch in the distal part contiguous with the external margin (Fig. 20).

Underside of the body dark brown, covered with long setae, coxae and trochanters pale, femora and tibiae dark brown, covered with dense, pale setae, metafemora with a pale patch in the apical part, tarsi brown with a distinct subapical tooth. Genitalia not examined.

Distribution: Rwanda.

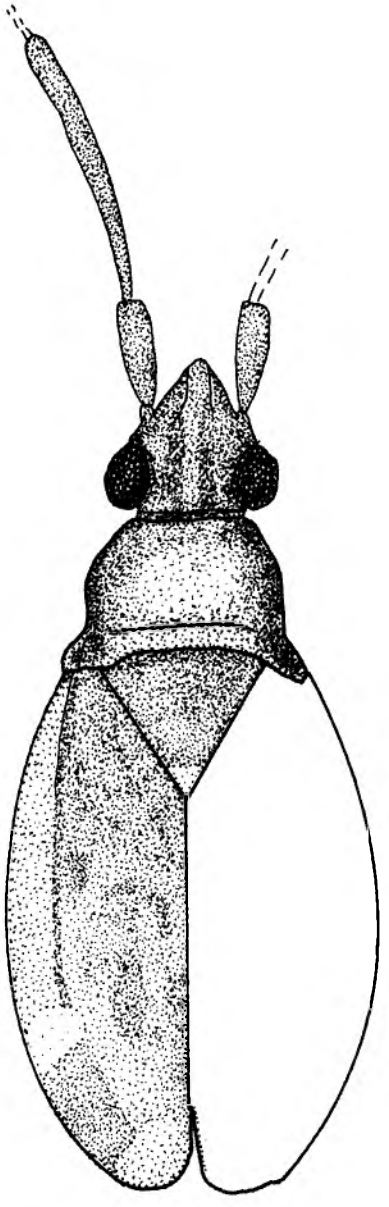


Fig. 20. *Afrofulvius heissi* gen. nov., sp. nov., holotype

Fulvius Stål

Type species: *Fulvius anthocorides* Stål, 1862 (monotypy)

Fulvius Stål, 1862: 322
Fulvius: Walker, 1873: 160; Distant, 1884: 281; Uhler, 1886: 19; Atkinson, 1890: 104; Reuter, 1892: 391, 1895: 129; Kirkaldy, 1906a: 143; Poppius, 1909: 19, 29; Oshanin, 1910: 817; Reuter, 1910: 154; Oshanin, 1912: 70; Poppius, 1912: 165; Van Duzee, 1916: 42, 1917: 365; Bergroth, 1920: 75; Blatchley, 1926: 878; Knight, 1941: 61; Wagner, 1945 [in Gulde]: 284; Froeschner, 1949: 137; Carvalho, 1952b: 48; Hussey, 1954: 19; Carvalho, 1955a: 19; Carvalho, 1957: 14; Kelton, 1959: 50; Kerzhner, 1964: 933; Wagner & Weber, 1964: 32; Carvalho & Gagne, 1968: 152; Maldonado Capriles, 1969: 21; Schmitz, 1970: 502; Wagner, 1973: 310; Alayo, 1974: 28; Linnavuori, 1975: 5; Carvalho & Lorenzato, 1978: 135; Medler, 1980: 94; Kelton, 1985: 1071; Kerzhner, 1988: 789; Henry & Wheeler, 1988: 271; Carvalho & Costa, 1994: 63, 68; Schuh, 1995: 25; Cassis & Gross, 1995: 147; Gorczyca, 1997a: 563, 1998c: 13; Kerzhner & Josifov, 1999: 8
Teratodella Reuter, 1875: 7
Type species: *Teratodella anthocoroides* Reuter, 1875
Teratodella: Reuter, 1875: 77; Bergroth, 1879: 108; Atkinson, 1890: 30; Carvalho, 1957: 15; Carvalho & Lorenzato, 1978: 135; Schuh, 1995: 26
Pamerocoris Uhler, 1877: 424
Type species: *Pamerocoris anthocoroides* Uhler, 1877 (monotypy)
Pamerocoris: Provancher, 1887: 126; Atkinson, 1890: 104; Carvalho, 1957: 15; Carvalho & Lorenzato, 1978: 135; Schuh, 1995: 26
Camelocapsus Reuter, 1878: cv
Type species: *Camelocapsus oxycarenoides* Reuter, 1878 (monotypy)
Camelocapsus: Atkinson, 1890: 30; Carvalho, 1957: 14; Carvalho & Lorenzato, 1978: 135; Schuh, 1995: 25
Silanus Distant, 1909: 519
Type species: *Silanus praefectus* Distant, 1909 (monotypy)
Silanus: Distant, 1910: 266; Reuter, 1910: 151; Carvalho, 1957: 15; Schuh, 1995: 26
Sinaluns (sic!): Carvalho & Lorenzato, 1978: 135

Diagnosis: Among other representatives of the tribe it can be distinguished by elongated body, hemelytra with almost parallel margins, only slightly wider than the length of the posterior margin of pronotum.

Redescription: Until now to be assumed the most speciose and variable genus within the subfamily, widely distributed. Body elongated, head triangular, to a lesser or greater degree elongated, antennae inserted on tubercles contiguous or almost contiguous with the margins of eyes. Eyes contiguous or removed from pronotal collar, usually reaching gula below. Rostrum reaching at least metacoxae.

Pronotum trapezoidal, shorter than its posterior margin, mesoscutum well exposed, scutellum usually flat.

Hemelytra well developed, the lateral margins of hemelytra almost parallel or only slightly rounded, embolium usually narrow, anal vein usually well visible, sometimes rib-like. Costal fracture distinct, membrane two-celled, venation usually distinct.

Legs long, metatibiae very long, much longer than other tibiae, tarsi two-segmented, second segment sometimes divided, claws slender, usually with a subapical tooth.

Distribution. The species of *Fulvius* are known from almost all geographical regions, most numerous in the Indo-Pacific. Until now they have not been reported from Australia.

KEY TO THE SPECIES OF *FULVIUS* STÅL

1. Body brown, almost unicoloured, eyes distinctly removed from pronotum 13
— Body differently coloured, if not then eyes contiguous or only slightly removed from pronotum 2
2. Body orange or yellowish orange ..... *flaveolus* Gorczyca
— Body differently coloured 3
3. Hemelytra brown, first antennal segment unicoloured, second segment pale in the apical third ..... *dolobratus* Distant
— Hemelytra with a different colour pattern 4
4. Hemelytra brown with a pale patch above cuneus, apex of scutellum pale, eyes covered with short setae ..... *dallastai* Gorczyca
— Hemelytra brown with a pale patch above cuneus, scutellum brown, unicoloured, eyes without setae 5
5. Hemelytra with pale, longitudinal stripes running from the base 10
— Hemelytra without longitudinal stripes 6
6. Body very dark, almost black, covered with dense, white, scale-like setae ..... *pictus* Distant
— Body brown, hemelytra pale at base 7
7. Hemelytra with a pale patch in the middle of corium 8
— Hemelytra without a pale patch in the middle 9
8. Small species, length of the body less than 3 mm, claws with a distinct subapical tooth ..... *tanzaniae* sp. nov.
— Body longer than 3 mm, claws without a subapical tooth .... *discifer* Reuter
9. Apex of clavus dark, second antennal segment dark, pale at apex, patch above cuneus usually white, claws toothed subapically ..... *anthocoroides* (Reuter)

— Apex of clavus pale, second antennal segment dark in the basal third, then pale, patch above cuneus usually orange, claws not toothed subapically ..... *subnitens* Poppius

10. Posterior margin of pronotum and pronotal collar pale .... *kerzhneri* sp. nov.

— Posterior margin of pronotum and pronotal collar dark 11

11. Scutellum dark, unicoloured ..... *Fulvius* sp.

— Apex of scutellum pale 12

12. The apical third of second antennal segment pale ..... *kajae* sp. nov.

— Second antennal segment brown, unicoloured ..... *webbi* sp. nov.

13. Second antennal segment pale in the apical third, major cell with a distinct stub ..... *major* Schmitz

— Second antennal segment unicoloured, or slightly paler only on the apex, major cell without a stub ..... *unicolor* Popp.

Remarks. Number 11 — *Fulvius* sp. — the description of this species will be published in a separate paper (Pluot-Sigwalt & Schmitz in prep.).

Fulvius anthocoroides (Reuter)

Teratodella anthocoroides Reuter, 1875: 8

Teratodella anthocoroides: Rey, 1888: 108; Atkinson, 1890: 30

Fulvius brevicornis Reuter, 1895: 138

Fulvius brevicornis: Reuter, 1895, 1905: 135, 138; Poppius, 1909: 30; Distant, 1910: 293; Poppius, 1912: 166, 168, 1915: 50; Bergroth, 1920: 75; Izzard, 1936: 587; Hussey, 1954: 19, 20. 21; Carvalho, 1955b: 222, 1957: 16; Odhiambo, 1967: 1665; Carvalho & Gagne, 1968: 153; Linsley, 1977: 13; Medler, 1980: 94; Schuh, 1995: 27; Gorczyca, 1997a: 563

Fulvius samoanus Knight, 1935: 203

Teratodella brevicornis: Cobben, 1968: 160

Fulvius anthocoroides: Wheeler, 1977: 589; Carvalho & Costa, 1994: 65, 74; Cassis & Gross, 1995: 148; Kerzhner & Josifov, 1999: 8

Type material examined

Lectotype (male) — present designation: Rouen [handwritten]; *Fulvius brevicornis* Reuter, Typ ! [handwritten]; Mus. Zool. H: fords, Spec. typ. No 9989, *Fulvius brevicornis* Reut [handwritten]; Mus. Zool. Helsinki, N:o 18155, vid. prep. microscop. 673—71; paratypus [pink label]; Lectotypus *Teratodella anthocoroides* design. Kerzhner (ZMHU). Prep. Mus. Congo; *Fulvius brevicornis* Reuter, Type, genitals n. 6737 (ZMHU). Paralectotype (male): Rouen [handwritten, old label]; paratypus [typed], Paralectotypus [handwritten, both written on pink label]; G. Schmitz det. 1967, *Fulvius brevicornis* Reuter [handwritten] (MRAC).

Other material examined

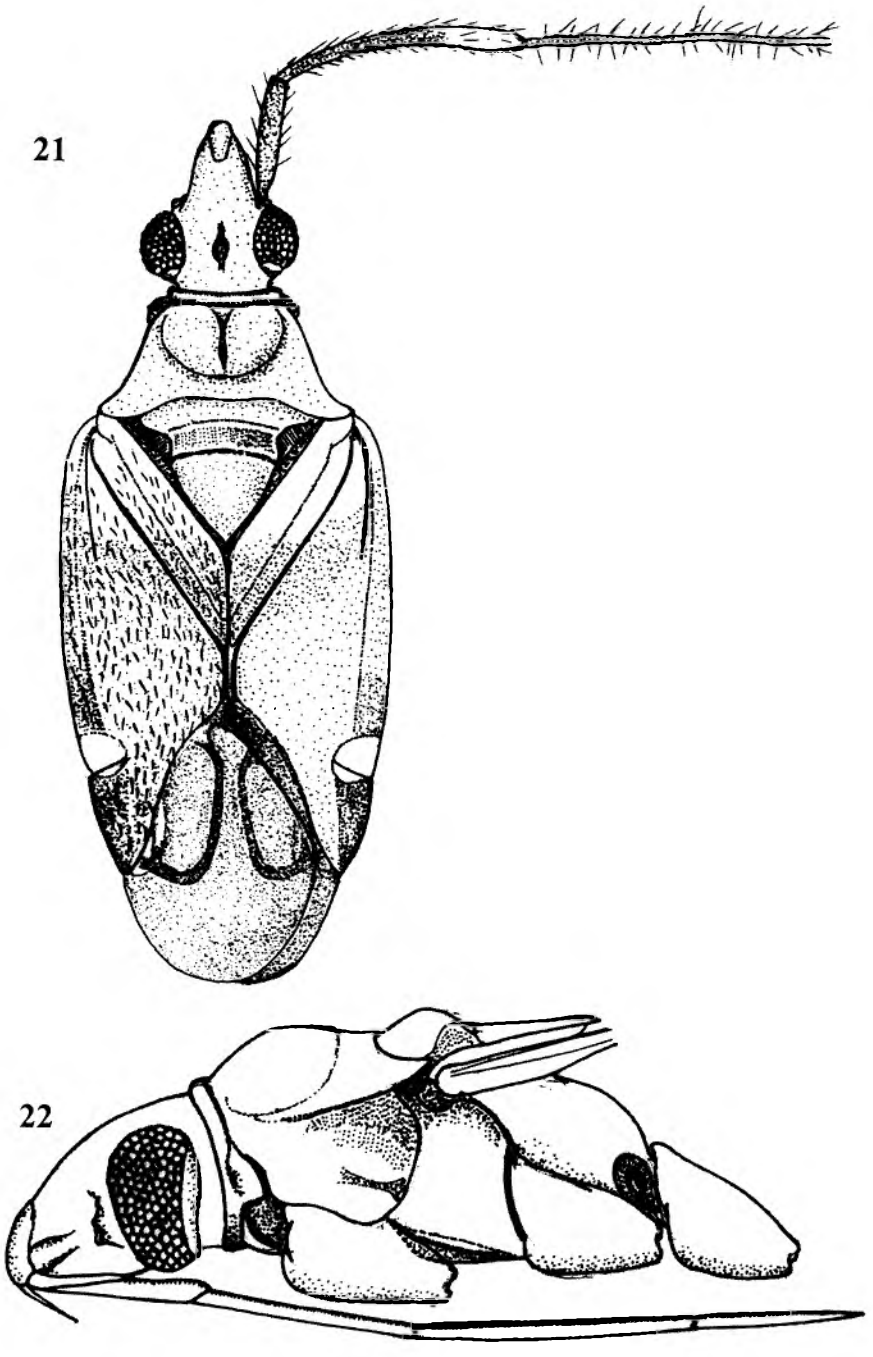
Female: Seychelles, Mt. Flenri; Mahe, 29: XII 1971, P.J.L. Roche; female: Seychelles, Mt. Flenri; Mahe,14: XI 1971, P.J.L. Roche; male: Seychelles, Mt. Flenri; Mahe, 20: XII 1971, P.J.L. Roche; two males: Coll. Mus. Tervuren, Cote d'Ivore: Bingerville, VIII. 1962, J. Decelle; *Fulvius brevicornis* Reut., G. Schmitz det. 1970; male: Coll. Mus. Congo, Llbondaie, Rev. Stegall, 1949; *Fulvius brevicornis* Reut., G. Schmitz det. 1970; female: Legon, Ghana, 14. Vii. 70, D. Leston; D. Leston coll. B. M. 1976—509; three females: Nigeria W. St. Ife, 7—8. VII, 14 VIII. 73 Linnavuori; two males: Nigeria E.C. St. Naukka, 30. VI. 73, Linnavuori; female: Coll. Mus. Tervuren, Malawi: Chintheche, 23. X. 1977, R. Jacque; two males: Legon, A. D., Ghana, 13. VII. 70, D. Leston; D. Leston coll. B. M. 1976—509; male: Tafo, Ghana, 18: VIII: 66; U. V. trap; male: Nigeria: Nigerian Institute for Oilpalm Research near Benin, 13 iii 1972; E. W. Classey, B. M. 1972—190; two specimen in JGC the rest in MRAC. Two females and two males: Seychellen, Mahe, Sans Sauci Rd., XI — 94 Heiss (JGC); male: Legon, A. D. Ghana, 13. VII. 70, D. Leston; Leston coll., B. M., 1976—509; in BMNH.

Diagnosis: Among other species of the genus it can be distinguished by the pale basal part of hemelytra and antennae pale in the apical third.

Redescription: Female. Body length 2.9—3.3 mm, width 1.14—1.20 mm, covered with dense, dark and pale setae. Head brown to dark brown, length of head 0.57 mm, width 0.54 mm, diameter of eye 0.17—0.18 mm. Eyes only slightly removed from pronotal collar (Figs 21—22), antennae inserted on tubercles contiguous with the margin of eye. First antennal segment dark brown, covered with short, dark setae, second segment dark brown in two basal thirds, pale and sometimes tinged with red in the apical third, covered with dark, dense setae, third and fourth segments thin, brown, covered with pale, protruding setae, longer than the diameter of the segments. Length of antennal segments in mm: 0.26—0.28: 0.78—0.80: 0.36 (0.52 third and fourth together). Rostrum brown, long, reaching abdomen.

Pronotal collar distinct, pronotum dark brown, covered with dense, scale-like setae, anterior lobe of pronotum raised, with a thin, longitudinal sulcus in the middle, posterior margin of pronotum with an incision. Length of pronotum 0.39—0.44 mm, anterior margin 0.44 mm, lateral margins 0.52 mm, posterior margin 0.96—0.98 mm. Mesoscutum and scutellum brown, in some specimens mesoscutum slightly paler than scutellum, scutellum unicoloured, brown.

Hemelytra pale at base, clavus pale in the basal half, then brown, anal veins not marked, embolium thin, pale at base, then brown, in some specimens tinged with red in the distal part. Corium brown (except the basal part), covered with dense setae, with a large pale patch above cuneus, sometimes tinged with red, cuneus unicoloured, brown. Membrane grey to dark grey, venation usually well visible.



Figs 21—22. *Fulvius anthocoroides* (Reuter), male, 21 — dorsal habitus, 22 — in lateral view (by Guy Schmitz)

Underside of the body brown, coxae and trochanters pale, femora dark brown, pale and slightly tinged with red at apex, tibiae and tarsi pale with a distinct subapical tooth.

Male. Similar to female but generally smaller. Body length 2.80—2.90 mm, width 0.90—1 mm, length of head 0.52 mm, width 0.46—0.48 mm, diameter of eye 0.15—0.16 mm, length of antennal segments in mm: 0.26—0.28: 0.65—0.70: 0.29: 0.39. Length of pronotum 0.39 mm, anterior margin 0.39 mm, lateral margins 0.44 mm, posterior margin 0.75—0.78 mm. Parameres and aedeagus as presented in Carvalho & Costa (1994; Figs 24—28).

Distribution: Ghana, Malawi, Nigeria, the Seychelles, Senegal (Hussey, 1954).

This species originally known from the Afrotropical and Oriental Regions was also introduced to North, South and Central America (Hussey, 1954), and has also been reported from the Galapagos Islands, Christmas Island, Bonin, Samoa, Cuba, Sri Lanka, Taiwan, the Mariana Islands, Martinique (Carvalho & Gagne, 1968), the Bahamas, Brazil, Chile, Costa Rica, Jamaica, Panama, Trinidad and Venezuela (Carvalho & Costa, 1994). I also examined specimens of this species collected in India and many areas of the Indo-Pacific Region.

Remarks. Representatives of this species were collected in the French harbour Rouen on a ship which had come from Senegal. In Reuter's original paper the author did not mention how many specimens of the new species, *Teratodella anthocoroides*, he actually had at his disposal. Nevertheless, in his next paper (Reuter, 1895) he gave measurements for males and females. Hussey (1954) claims that the species was described on the basis of a single specimen. However, in the collection of Cylapinae in MRAC I found a specimen with an old, handwritten label "Rouen" and labelled by Schmitz as a paralectotype. This is why I decided to design the specimen from the Zoological Museum in Helsinki as a lectotype.

Fulvius dallastai Gorczyca

Fulvius dallastai Gorczyca, 1998c: 18

Type material examined

Holotype (male): Tafo, Ghana, 27. XII. 65; U.V. Trap; holotypus [pink label]; holotype [red label]; *Fulvius dallastai* sp. n., det. J. Gorczyca, 1997; paratype (female): Allotypus; Tafo, Ghana, 29. XI. 65; UV. Trap; paratype [red label]; *Fulvius dallastai* sp. n., det. J. Gorczyca, 1997; paratype (male): U.V. Trap; Tafo, Ghana, 17. IX 66; paratypus; paratype [red label]; *Fulvius dallastai* sp. n., det. J. Gorczyca, 1997; paratype (male): U.V. Trap; Tafo, Ghana, 26. IX. 66; paratypus; paratype [red label]; *Fulvius dallastai* sp. n., det. J. Gorczyca, 1997; paratype (male): Tafo, Ghana, 29: IX. 66; paratypus; paratype [red label]; *Fulvius dallastai* sp. n., det. J. Gorczyca, 1997. Holotype and three paratypes in MRAC, one paratype in JGC.

Other material examined

Male: Ivory Coast, Adiopodoune, 29. IX — 7. X. 73, Linnavuori; male: Sudan, Eqatoria, Yanbio, 17—25. IV. 63, Linnavuori; paratypus; *Fulvius hirtus* sp. n. G. Schmitz det. 1968; 675. 161; *Fulvius dallastai* Gorczyca, det. J. Gorczyca, 1998; male: Coll. Mus. Tervuren; Cameroun: Maroua (lumiere) X\XI. 1965, G. Schmitz; paratypus; *Fulvius hirtus* sp. n. G. Schmitz det. 1973; *Fulvius dallastai* Gorczyca, det. J. Gorczyca, 1998; male?: UV Trap; Tafo, Ghana, 23. I. 66. All in MRAC; three males: N. Nigeria, Zaria, Samaru, vii, 1979, J.C. Deeming; male: N. Nigeria, Zaria, Samaru, x, 1979, J. C. Deeming, one in JGC, three specimens in NMWC; male: Nigeria W. St. Igboho-Kishi, 19. VII. 73, Linnavuori; (LC); male: u. v. trap; Tafo, Ghana, 27. VII. 66, Leston; D. Leston coll., B. M., 1976—509; male: u. v. trap; Tafo, Ghana, 29. VIII. 66, Leston; D. Leston coll., B. M., 1976—509. Both in BMNH.

Diagnosis: Among other representatives of the genus it can be distinguished by eyes covered with setae, characteristically coloured body and claws not toothed subapically.

Redescription: Male. Body small, elongate, brown, covered with dark, thick, scale-like setae. Length of the body 2.8—3 mm, width 1—1.1 mm, head short, brown, clypeus, mandibular and maxillar plates slightly tinged with red, vertex convex. Length of head 0.44—0.46 mm (in top view), width 0.5—0.52 mm, diameter of eye 0.14 mm. Eyes slightly removed from pronotal collar, covered with short setae. Antennae inserted on tubercles contiguous with margins of eyes, first antennal segment brown, tinged with red and thickened towards the apex, covered with short setae; second segment dark brown, almost black, white in the apical part and tinged with red at base, gradually thickened towards the apex, covered with dense, very short, pale setae; third segment pale brown to brown, covered with long, pale, protruding setae. Length of antennal segments in mm: 0.3—0.32: 0.8—0.84 (third segments partly broken in the examined specimens, fourth segments mutilated).

Pronotum dark brown to almost black, the anterior lobe of pronotum slightly raised, with a longitudinal sulcus in the middle. Length of pronotum 0.4 mm, anterior margin 0.44 mm, lateral margins 0.48 mm, posterior margin 1.0 mm. Mesoscutum well exposed, with oblique carina on sides, dark brown in the middle, paler and tinged with orange on sides. Scutellum dark brown at base, with a big, contrasting, white patch at apex.

Hemelytra brown, paler and tinged with orange at base, the distal part of embolium and cuneus dark brown. There is a large white patch above cuneus, slightly tinged with red. Membrane grey, bicellulated, venation dark, minor cell indistinct.

Underside of the body brown with darker areas. Coxae and femora brown, slightly tinged with red at apex; tibiae and tarsi pale brown, covered with dense, pale setae, tarsi two-segmented, first segment very short, claws without a subapical tooth (Gorczyca, 1998c, Fig. 11). Parameres relatively stout, covered with setae (Gorczyca, 1998c, Figs 9—10).

Female similar to male. Body length 3 mm, width 1.2 mm, length of head 0.4 mm, width 0.6 mm, diameter of eye 0.11 mm, length of pronotum 0.36 mm, anterior margin 0.44 mm, lateral margins 0.44 mm, posterior margin 1.1 mm. Length of antennal segments in mm: 0.32: 1: 0.8 (remaining segments broken in the examined specimens).

Distribution: Cameroon, Ghana, Ivory Coast, Nigeria, Sudan: Equatoria.

Fulvius discifer Reuter

Fulvius discifer Reuter, 1907: 22

Fulvius discifer: Poppius, 1909: 30, 1912: 167; Bergroth, 1920: 76; Carvalho, 1957: 17; Medler, 1980: 94; Schuh, 1995: 27

Type material examined

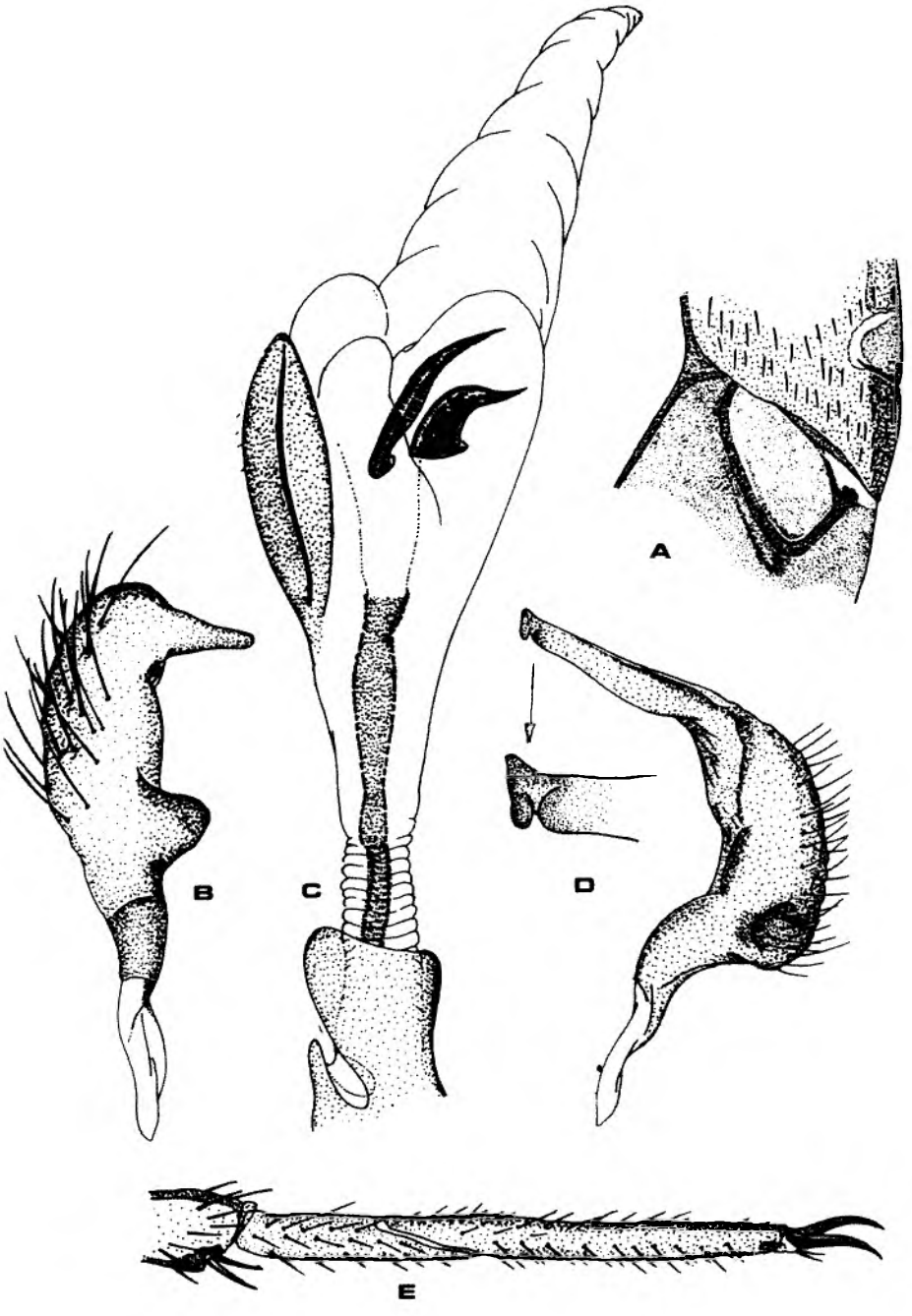
Lectotype: (female) — present designation: Ins. Funda [old, handwritten label]; Typus, *Fulvius discifer* Reut. [old handwritten label]; Mus Zool., Helsinki N:o 18154; Mus Zool. H:fors, Spec typ. No 9988, *Fulvius discifer* Reut; holotypus [pink label]; 674/181; Mus Zool. Helsink No. HE1054; paralectotype (female): Ins Funda [old, handwritten label]; Mus Zool. Helsinki N:o 18523; G. Schmitz det. 1967, *Fulvius discifer* Reuter; Prep No 674181; paratypus [pink label]; paralectotype (female): Ins. Funda per Pemba, subcortice humido [old, handwritten label]; *Fulvius discifer* Reut.; paratypus [pink label]; Mus. Zool. Helsinki, N:o 18522. All housed in ZMHU.

Other material examined

Male: Ethiopia, Shashamanni 7—8. VI. 63, Linnavuori; allotype [pink label]; *Fulvius discifer* Reuter, G. Schmitz det. 1968 (LC); female: S. Africa: Natal, Verulanc? [handwritten] 7. 1897, Dr. Brown, B.M. 1975—494, (BMNH); male: Coll. Mus. Congo Kasenyi, 19—VIII—1937, H.J. Bredo; parallotypus; *Fulvius discifer* Reuter, G. Schmitz det.; male: Musee du Congo, Itusi: Wamba, 13 — VIII — 1930, Dr P. Gerard; *Fulvius discifer* Reuter, G. Schmitz det.; allotypus (MRAC); female: Uganda, Kampala, 7 — IX. 1938; Decaying banana steam, (JGC); female: Nanisana, Tananarive, Madag., Olsuf "ev [Олсуфъев], XII. 931; *Fulvius ??discifer* Reut., Kerzhner det. 961; leg. Olsufiev; *Fulvius discifer* Reut. G. Schmitz det, 1970; female: Perinet, Madagascar, Olsuf "ev [Олсуфъев], 25. II. 935; *Fulvius discifer* Reut. G. Schmitz det. 1970. Both in ZIN.

Diagnosis: Similar to *Fulvius anthocoroides* (Reut.) but differs from it in hemelytra only slightly paler at base, a pale, indistinct patch on corium between clavus and embolium, and a smaller pale patch above cuneus. *Fulvius anthocoroides* has also a small subapical tooth, which does not occur in *F. discifer* (Fig. 23E).

Redescription: Female. Body dark brown, covered with dense, dark setae, length of the body 3.25—3.50 mm, width 1.43—1.45 mm. Head dark brown, eyes relatively small, contiguous with pronotal collar, antennae on tubercles contiguous with the margins of eyes. Length of head 0.62 mm, width 0.57 mm,



Figs 23A—E. *Fulvius discifer* Reuter, A — venation of membrane, B — right paramere, C — aedeagus, D — left paramere, E — metatarsi (by Guy Schmitz)

diameter of eye 0.15 mm. First and second antennal segments dark brown, covered with dense, short setae, second segment white in the apical part. Length of antennal segments in mm: 0.39: 0.78—0.80 (third and fourth segments broken in the examined specimens). Rostrum dark brown, reaching the mid of abdomen.

Pronotal collar thin, dark brown, pronotum dark brown, anterior lobe slightly raised, with a thin, longitudinal sulcus in the middle, posterior margin with an incision. Mesoscutum and scutellum unicoloured, dark brown. Length of pronotum 0.41 mm, length of anterior margin 0.45 mm, lateral margins 0.57 mm, posterior margin 1.0 mm.

Hemelytra brown, paler at base, covered with dense, dark setae and scale-like setae. Embolium thin, pale at base, then brown, clavus slightly paler in the basal half. Corium brown with a slightly paler patch between clavus and embolium and a distinct white patch above cuneus, cuneus dark brown. Membrane dark grey, venation distinct (Fig. 23A), brown.

Underside of the body dark brown, legs unicoloured, brown, only tarsi pale, two-segmented, without a subapical tooth (Fig. 23E).

Male similar to female but smaller, parameres and aedeagus as in Figs 23B—D.

Distribution: Congo (Kinshasa) near the border with Uganda, Ethiopia, Madagascar, South Africa: Natal, Uganda, Tanzania: Funda Island near Pemba.

Remarks. The type specimens are smaller and the patch above cuneus is pale, in the other specimens the patch above cuneus is slightly tinged with orange.

Fulvius dolobratus Distant, distinct species

Fulvius dolobratus Distant, 1913: 181
Fulvius dolobratus: Bergroth, 1920: 76; Carvalho, 1957: 17, 1981a: 3; Schuh, 1995: 27
Fulvius pallidus not of Poppius: Carvalho 1981a: 3

Type material examined:

Holotype: Praslin, 08, Seychelles Exp.; Type [circular label with red margin]; Seychelle Islands, Percy Sladen, Trust Expedition, 1911—497; *Fulvius dolobratus* Dist., type [old, handwritten label]; holotypus [pink label]. In BMNH.

Diagnosis: This species is similar to *Fulvius pallidus* Poppius but differs from it in the second antennal segment pale in the apical third.

Redescription: Female (male unknown). Body unicoloured, brown, covered with dark, relatively thick, scale-like setae and fine, white setae. Length of the body 3.50 mm, width 1.50 mm. Head elongated, brown, length of head 0.60 mm, width 0.46 mm, diameter of eye 0.08 mm. Vertex with a very

thin, indistinct, longitudinal sulcus, eyes removed from pronotal collar, covered with dark, short, upright setae, antennae inserted on tubercles slightly removed from the margin of eyes. First antennal segment dark brown, second brown, white in the apical third, covered with dense, fine setae, slightly thickened towards the apex. Third segment very thin, dark brown, covered with fine, protruding setae. Length of antennal segments in mm: 0.26: 0.83: 0.28 (fourth segment broken in the examined specimen). Rostrum brown, paler at base, gradually darkened towards the apex.

Pronotum and pronotal collar brown, callar area almost confluent, slightly convex, posterior margin of pronotum with an incision. Length of pronotum 0.44 mm, length of anterior margin 0.46 mm, lateral margins 0.52 mm, posterior margin 0.85 mm. Mesoscutum and scutellum brown, scutellum slightly tinged with red at apex.

Hemelytra brown, clavus and the part of corium contiguous with claval suture pale brown, embolium narrow, darker, slightly tinged with orange. The distal part of embolium contiguous with costal fracture, pale, cuneus dark brown. Membrane pale, shining, venation thick, distinct, brown, major cell triangular, minor cell very small.

Underside of the body brown, partly tinged with red. Coxae pale, remaining legs broken, the holotype of this species was examined before my study and seriously damaged.

Distribution: The Seychelle Islands: Praslin.

Remarks. This species was synonimized with *Fulvius pallidus* Poppius by CARVALHO (1981a) and up to now it has been treated as a synonym of this species. Examination of the type material leaves no doubt that *Fulvius dolobratus* has nothing to do with *F. pallidus*, which has a unicoloured, brown second antennal segment. This species seems to be closer to *F. anthocoroides* (Reut.) and in the present paper it is understood as a distinct species.

Fulvius flaveolus Gorczyca

Fulvius flaveolus Gorczyca, 1997a: 564

Type material examined

Holotype (male): Tafo, Ghana, 2. IX. 67; paratype (male): Beneath loose bark [handwritten]; Tafo, Ghana, 11 IX. 65; paratype (male): UV Trap; Tafo, Ghana, 20. I. 66; paratype (male): UV Trap; Tafo, Ghana, 26. X. 65; paratype (male): U.V. trap; Tafo, Ghana, 21. X. 67; paratype (female): Under bark of fallen tree [handwritten]; Tafo, Ghana, 6. VII. 67; paratype (female): U. V. trap; Tafo Ghana, 16. VII. 67; paratype (female): Begoro, Ghana, zange, 23 IX 66 [handwritten]. Holotype and six paratypes in MRAC, one paratype in JGC.

Other material examined

Male: Centr. Afr. Rep., La Maboke, 6—9. VI. 75, Linnavuori; under bark [handwritten]; female: Ghana: Tafo, 8 Oct. 1967, Ja & S Slater, Toby Shuh; paratypus [pink label]; collected at ultraviolet light; *Fulvius fulvicolor* sp. n., G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997; female: Ghana: Tafo, 9 Oct. 1967 Ja & S Slater, Toby Shuh; paratypus [pink label]; collected at ultraviolet light; *Fulvius fulvicolor* sp. n., G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997; male: Ghana: Tafo, 6 Oct. 1967, Ja & S Slater, Toby Shuh; paratypus [pink label]; collected at ultraviolet light; *Fulvius fulvicolor* sp. n., G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997; male: paratypus [pink label]; Coll. Mus. Tervuren, Cote d'Ivoire: Divo, V. 1964, J. Descelle; *Fulvius fulvicolor* sp. n., G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997; male: holotypus [pink label]; Mweka, I. 1960, Ho. N. Mastrent ? [handwritten]; Coll. R. Mayne, Comm. Et. Bois Congo; Coll. Mus. Tervuren; *Fulvius fulvicolor* sp. n., G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997; female: UV Trap [handwritten]; Tafo, Ghana, 14. VI. 67; female: U V Trap [handwritten]; 2. VI. 65, Tafo, Ghana [handwritten]; female: UV Trap; Tafo, Ghana, 25: II: 66; female: UV Trap; Tafo, Ghana, 16. XII. 65; female: U.V. trap; Tafo, Ghana, 19. III. 67; female: Tafo, Ghana, 4. VII. 67; U.V. trap; female: U.V. trap; Tafo, Ghana, 3. VII. 67; female: On the bark of tree [handwritten]; Tafo, Ghana, 28. XI. 67; female: Tafo, Ghana, 2. IX. 67; female: U.V. trap; Tafo, Ghana, 27. 4. 67; female: beneath loose bark [handwritten]; Tafo, Ghana, II. IX. 65; female: Tafo, Ghana, 7. X. 65; At light; UV Trap [handwritten]; Tafo, Ghana, 14. VI. 67; female: UV Trap; Tafo, Ghana, 14. XII. 65; UV Trap; 10. I. 66; male: UV Trap; Tafo, Ghana, 23. IX. 65; three males: Under bark of fallen tree [handwritten]; Tafo, Ghana, 6. 7. 67; male: Tafo, Ghana, 4. IV. 67; U.V. trap; male: U.V. trap; Tafo, Ghana, 1. IX. 67; male: Tafo, Ghana, 14. IX. 65; UV Trap; male: U. V. trap; Tafo, Ghana, 6. X. 66; male: U. V. trap; Tafo, Ghana, 8. X. 66; male: U. V. trap; Tafo, Ghana, 28. 3. 67; male: U. V. trap; Tafo, Ghana, 20. VII. 67; male: UV trap; Tafo, Ghana, 21: II: 66; male: At light; Tafo, Ghana, 9. X. 65. Five specimens in JGC, the rest in MRAC. One male: Angola (A.26), Salazar I. AA., 9—15 iii. 1972; forest leaf litter; Southern African Exp., B.M. 1972 — 1. female: UV Trap; Tafo, Ghana, 1. II. 66, Leston — D. Leston coll. B.M.; female: U.V. trap; Tafo, Ghana, 10 X 67, D. Leston. All in BMNH; female: Ile-Ife Nigeria, 25 Jul. 1970, Col. J. T. Medler; *Fulvius fulvicolor* G. Schmitz, G. Schmitz det. 1970; *Fulvius flaveolus* Gorczyca, det. J. Gorczyca, 1997. In LC.

Diagnosis: Among other representatives of the genus it can be easily distinguished by intense yellow, partly orange coloration of the body.

Redescription: Male. Body small, elongated, pale yellow to almost orange, covered with dense, short, dark and pale setae. Length of the body 3.1—3.15 mm, width 1.0 mm. Head yellowish, covered with pale setae, slightly tinged with red or orange, shining, elongated; eyes large, granulated, removed from thin pronotal collar, vertex with a weak depression in the middle. Distinct dark stripes on head begin from the inner margin of eye and reach the apex of clypeus, forming a characteristic V-shaped patch. Maxillary plates

and the sides of clypeus dark. Antennae inserted on antennal tubercles, contiguous with the margin of eyes. Length of head 0.6 mm, width 0.56 mm, height 0.32 mm, diameter of eye 0.15 mm. First antennal segment dark brown, slightly thickened towards the apex, covered with dense, short setae. Second segment also slightly thickened towards the apex, dark brown to almost black in two thirds, then pale, covered with pale setae. Third and fourth segments dark, thin, very short, covered with setae much longer than their diameter. Length of antennal segments in mm: 0.32: 0.8: 0.28: 0.55. Rostrum long, reaching pygophor, pale brown or yellowish, only the last segment darkened.

Pronotum trapeziform, yellow to orange, covered with short, dark setae, posterior margin with a deep, subquadrate excavation in the middle; calli almost fused, strongly prominent, occupying most of the anterior two-thirds of pronotum, with a short longitudinal sulcus in the middle. Length of pronotum 0.65 mm, anterior margin 0.68 mm, posterior margin 1.3 mm, lateral margins 0.8 mm. Mesoscutum and scutellum entirely yellow to orange, covered with dark, short setae, scutellum flat.

Hemelytra covered with short, dark and pale setae. Clavus and the basal part of hemelytra yellow, slightly paler than the distal part. Embolium distinct, darkened distally; the apex of hemelytra darkened, reddish or brownish, with a distinct, white, shining patch contiguous with cuneal fracture. Cuneus brownish or reddish, covered with short, dark setae. Membrane pale or greyish, bicellulated, venation pale, weakly marked.

Underside of the body yellowish, legs yellow to orange, covered with pale, short setae, tibiae and tarsi paler than femora. Tarsi long, thin, two-segmented, second segment distinctly longer than first; claws slender with a distinct subapical tooth. Parameres and aedeagus elongated (GORCZYCA, 1997a, Figs 1—3).

Female similar to male, a little bigger, length of the body 3.4 mm, width 1.1 mm, rostrum reaching the seventh segment of abdomen. In all examined female specimens membrane was darker than in males.

Distribution: Angola, Central African Republic, Congo (Kinshasa), Ghana, Ivory Coast, Nigeria.

Fulvius kajae sp. nov.

Type material

Holotype (male): Kenya, Mt. Elgon Nat. P.near Kitum Cave, 2400, dry evergreen montane forest; singlet & swept from the vegetation, 26. I. 1992, No 512, O. Merkl & G. Varkonyi (HNHM); paratype (male): Kenya, Elgon Saw Mill, M'Elgon, Ver'Est, (Camp II), 2.470 m; Museum de Paris, Mission de L'Omo, C Aramboorg, P. A. Chappuis & R. Jeannel, 1932—33 [blue label]; paratypus [pink label]; 705—111 [yellow label]; *Fulvius radiatus* sp n [handwritten]; G. Schmitz det. 1970 (MRAC); paratypes (male and female): Coll. Mus. Congo, Rwankwi, -I-1944, J. V. Leroy; Recolte survieille souche *Erythrina* [pale green label]; paratypus [pink label]; *Fulvius radiatus* sp n

[handwritten]; G. Schmitz det. 1970, (MRAC); paratype (male): Uganda, Kampala, 7. IX 1938, H. Hargreaven; Decaying banana steam [handwritten], (BMNH); paratype (male): Decaying banana stem [handwritten]; Uganda, Kampala, 7. IX. 1938, H. Hargreaves; Brit. Mus. 1958—159, (JGC); paratype (female): Decaying banana stem [handwritten]; Uganda, Kampala, 7. IX. 1938, H. Hargreaves; Brit. Mus. 1958—159., (BMNH).

Etymology: This species is for my daughter Kaja.

Diagnosis: The new species is very similar to *Fulvius kerzhneri* but differs from it in a pale patch on the apex of scutellum, narrower pale stripes on hemelytra and dark posterior margin of pronotum (Fig. 25).

Description: Male. Body brown to dark brown, covered with dense, short, fine setae, length of the body 3—3.17 mm, width 1—1.15 mm. Head dark brown to almost black, covered with dense, short, pale setae. Eyes small, slightly removed from pronotal collar, vertex with a short, longitudinal sulcus. Length of head 0.49 mm, width 0.49 mm, diameter of eye 0.15 mm. Antennae contiguous with the margins of eyes, first segment dark brown, second segment brown, thickened towards the base, white in the apical part, both segments covered with dense, pale, short setae. Third and fourth segments thin, almost black, length of antennal segments in mm: 0.34—0.37: 0.80: 0.28: 0.25. Rostrum brown, reaching at least metacoxae but not well visible in the available specimens.

Pronotal collar thin, brown, pronotum very dark, anterior lobe only slightly raised, with a small depression in the middle and with a short, shallow, longitudinal sulcus. Posterior margin of pronotum with a shallow incision, length of pronotum 0.33 mm, anterior margin 0.39 mm, lateral margins 0.41 mm, posterior margin 0.91 mm. Mesoscutum dark, paler on sides, slightly tinged with red in the holotype, scutellum dark brown, pale at apex.

Hemelytra pale at base (in the holotype tinged with red at base), then brown, with four pale, longitudinal stripes on each side: on medial fracture, along claval suture, on rib-like anal vein inside clavus, and on the inner margin of clavus, contiguous with the lateral margins of scutellum. The longest is the pale stripe running along claval suture, but it hardly extends beyond the apex of clavus. Corium brown to dark brown, with a large, white patch above cuneus, cuneus dark brown to black, slightly tinged with red in the holotype. Membrane grey to dark grey, venation brown.

Underside of the body dark brown, forecoxae brown, meso- and metacoxae pale, femora brown, slightly tinged with red at apex, covered with short, dense setae, tibiae and tarsi pale brown, tarsi two-segmented, claws toothed subapically. Genitalia not examined.

Female similar to male but bigger, length of the body 3.45 mm, width 1.10 mm.

Distribution: Congo (Kinshasa?), Kenya, Uganda.

Fulvius kerzhneri sp. nov.

Type material

Holotype (female): Nanisana, Tananarive, Madag, Olsuf "ev [Олсуфьев], XII. 931; *Fulvius* ? sp. n. Kerzhner det. 961 [handwritten]; holotypus [pink label]; *Fulvius olsoufieri* sp. n. G. Schmitz det. 1970 (ZIN); paratype (male): holotypus [pink label]; Musee du Congo, Mayumbe: Kikongo [handwritten], 17 — IV — 1925, A. Collart; *Fulvius melinoderus* sp. n. [handwritten], G. Schmitz det. 1970 (MRAC); paratype (male): Zululand, Eshowe, 23—30. iv. 1926; S. Africa, R. E. Turner, Brit. Mus., 1926—194; paratype (male): Zululand, Eshowe, 1—22. iv. 1926; S. Africa, R. E. Turner, Brit. Mus., 1926—175, both in BMNH; paratypes (male and two females): Zululand, Eshowe, 6—31. iv. 1926; S. Africa, R. E. Turner, Brit. Mus., 1926—32, one female in JGC the rest in BMNH; paratype (female): Zululand, Eshowe, July 1926; S. Africa, R. E. Turner, Brit. Mus., 1926—299; paratype (male): S. Africa, R. E. Turner, Brit. Mus., 1926—510; Fort St. John, Pondoland, Sept. 1923. Both in BMNH.

Etymology: This species is named in honour of Professor Izya Kerzhner, Zoological Institute RAS, St. Petersburg, Russia.

Diagnosis: This species is similar to *Fulvius kajae* but differs from it in broader pale stripes on hemelytra, unicoloured scutellum, pale pronotal collar and pale posterior margin of pronotum.

Description: Female. Body elongated, brown, covered with fine, short setae, length of the body 4.30 mm, width 1.37 mm. Head brown, paler beyond eyes, vertex with a hardly visible, longitudinal sulcus, dark brown, frons dark brown, clypeus and mandibular plate slightly paler. Eyes removed from pronotal collar, antennae on tubercles almost contiguous with the margins of eye, length of head 0.62 mm, width 0.59 mm, diameter of eye 0.15 mm. First antennal segment dark brown, covered with short setae, second segment dark brown, white at apex, covered with dense, pale, short setae, third and fourth segments thin and brown. Length of antennal segments in mm: 0.36: 1.0: 0.65 (third and fourth together). Rostrum brown, reaching beyond metacoxae.

Pronotal collar pale, pronotum unicoloured, brown, covered with dense, short, pale setae and with a pale, transverse band, contiguous with scutellum. Anterior lobe slightly raised, with a short, longitudinal sulcus in the middle. Length of pronotum 0.49 mm, anterior margin 0.52 mm, lateral margins 0.65 mm, posterior margin 1.10 mm. Mesoscutum and scutellum brown.

Hemelytra pale at base, then brown, with broad, pale, longitudinal bands. The shortest and thinnest stripe is on medial fracture, a broad, pale band runs along the inner margin of clavus and along claval commissure, other two cut through claval suture and corium, parallel to claval suture. There is a large white patch above cuneus, cuneus dark brown, membrane grey, venation well marked.

Underside of the body brown, coxae, trochanters and the base of femora pale, femora brown, tibiae and tarsi pale brown. Tarsi two-segmented, toothed subapically.

Male. Body with the same colour pattern as the female but much smaller, length of the body 3.12 mm, width 1.1 mm. Genitalia not examined.

Distribution: Madagascar, Congo (Kinshasa), South Africa: Zululand.

Fulvius major Schmitz

Fulvius major Schmitz, 1970: 503

Fulvius major: Linnavuori, 1975: 5; Schuh, 1995: 28; Gorczyca, 1997a: 563

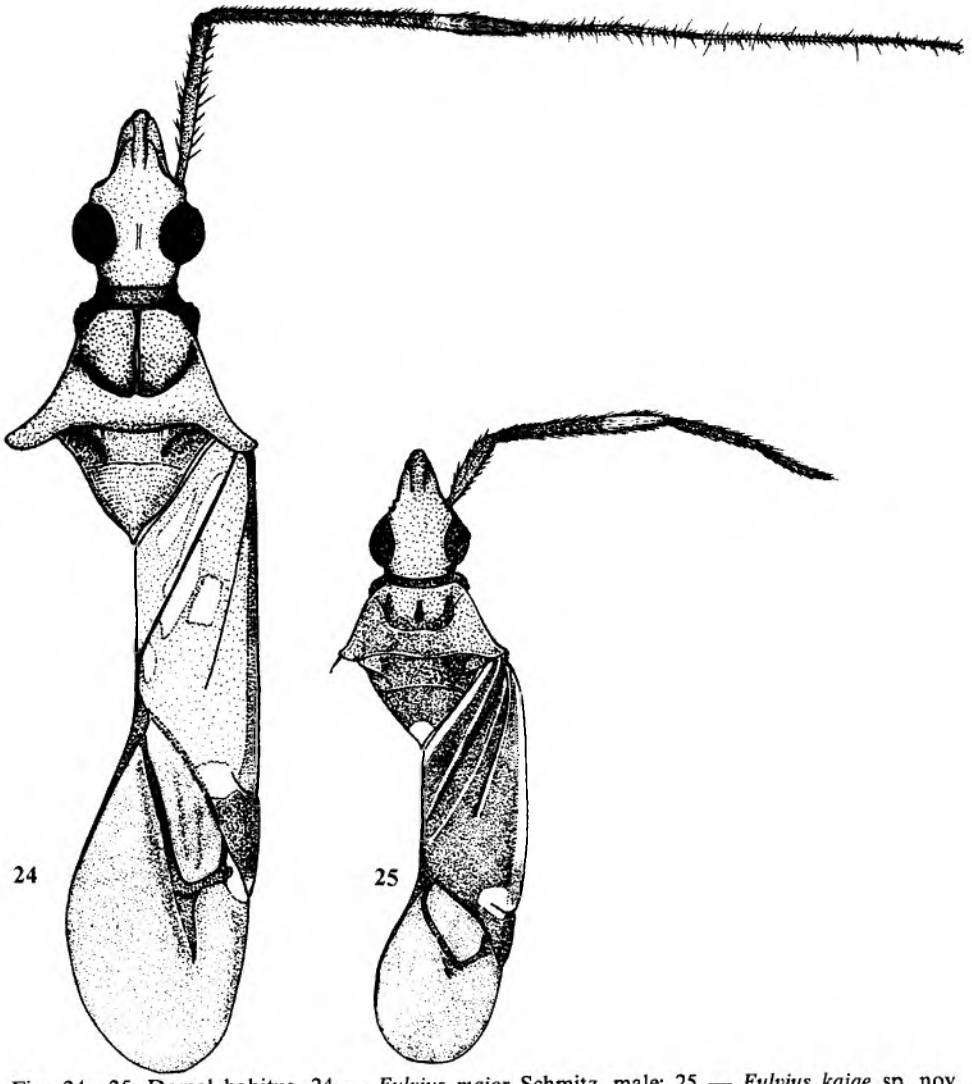
Type material examined

Holotype (male): Kamerunberg, Mannsquell-Hutte, 2250 m. 7.5.38, Buhr; 675. 160; paratypus [pink label]; G. Schmitz det. 1967; *Fulvius major* sp. n.; slide: Mus. Cong.: *Fulvius major* G. Schmitz, Abdomen, genitalia, 675. 160, — holotype labeled by mistake as a paratype (MNHU); paratype (female): Sudan, Equatoria, Imatong Mts. nr. Gilo, 18—24. III. 63, Linnavuori; paratype [pink label]; n. 675182; G. Schmitz det. 1967, *Fulvius major* sp. n. [handwritten] (LC); paratype (female): Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963—1964; Odzala, Congo, Novembere; G. Schmitz det. 1967, *Fulvius major* sp. n. [handwritten]; n 675181; paratypus [pink label with a symbol of female]; Mus. Cong.: *Fulvius major* sp. n. G. Schmitz, Apparecil genital Abdom. n. 675181 [handwritten] Both in MNHN; paratype (male): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, XI, 1961, J. Decelle; paratypus [pink label]; *Fulvius major* sp. n., G. Schmitz det. 1970; paratype (male): Bitale, Kiwu, 1954, R. Pierlot, RP. 13a; Coll. R. Mayne, Com El Bois Congo; Coll. Mus. Congo; paratypus; *Fulvius major* sp. n., G. Schmitz det. 1970; Bitale, 20. VIII. 52; RM, 245—12; Coll. R. Mayne, Coll et Bois Congo, R. 2426; Coll. Mus. Congo, Don R. Mayne; 707\61; paratypus [pink label]; *Fulvius major* sp. n., G. Schmitz det. 1970; paratype (male): Musee du Congo, Eala, — VIII — 1935, J. Ghesquiere; paratypus [pink label]; *Fulvius major* sp. n., G. Schmitz det. 1970. All housed in MRAC.

Other material examined

Female: Angola Congulu. iv. 1934, K. Jordan. B.M. 1934—435; (BMNH); two females: NKolbisson 8 — IV — 66 [handwritten]; Museum Paris, Cameroun, B. de Mire; (MNHN); male: Nkolbisson, 29 — i — 68 Museum Paris, Cameroun, B. de Mire; (MNHN); female: Nkolbisson 19 — XII — 68 [handwritten]; Museum Paris, Cameroun, B. de Mire; (MNHN); female: Nkolbisson 24 — X — 68 [handwritten]; Museum Paris, Cameroun, B. de Mire; (MNHN); female: Nkolbisson 27 — VI — 66 [handwritten]; Museum Paris, Cameroun, B. de Mire; (MNHN); two males: Nkolbisson, 30. XI. 67 [handwritten]; Museum Paris, Cameroun, B. de Mire; (JGC); female: Centr. Afr. Rep., La Maboke, 6—9. VI. 73, Linnavuori; (JGC); male: Ivory Coast, Man, 14—21. X. 73, Linnavuori; (JGC); male: Tafo, Ghana, 14. VI. 67; UV Trap; (JGC); female: U.V. trap; Tafo, Ghana, 23. IX. 67; female: UV Trap; Tafo, Ghana, 1. 3. 66; (JGC); female: Ivory Coast, Man, 14—21. X. 73, Linnavuori; female: UV Trap

[handwritten]; Tafo, Ghana, 14. VI. 67; female: UV Trap; Tafo, Ghana, 26. II. 66; female: UV Trap; Tafo, Ghana, 11. I. 66; two females: U.V. trap; Tafo, Ghana, 19. IX. 67; female: UV trap; Tafo, Ghana, 31. I. 66; female: UV Trap; Tafo, Ghana, 28. IX. 67; female: UV Trap; Tafo, Ghana, 15. XI. 65; female: UV Trap; Tafo, Ghana, 13. VIII. 65; female: Tafo, Ghana, 6. IX. 67; U.V. trap; male: UV Trap; Tafo, Ghana, 1. 2. 66; male: UV Trap; Tafo, Ghana, 12. I. 66; male: UV Trap; Tafo, Ghana, 10. I. 66; male: U.V. trap; Tafo, Ghana, 23. XII. 66; male: U.V. trap; Tafo, Ghana, 2. 6. 67; two male: Tafo, Ghana, 22. I. 66; UV Trap male: Tafo, Ghana, II. I. 66; UV Trap; male: Tafo, Ghana, 20. IX. 65; At light; male: 10. VI. 65 [handwritten], Tafo, Ghana; male: Ghana,



Figs 24—25. Dorsal habitus, 24 — *Fulvius major* Schmitz, male; 25 — *Fulvius kajae* sp. nov., paratype, female (by Guy Schmitz)

Tafo, 6 Oct. 1967, JA & S. Slater, Toby Schuh; collected at ultraviolet light; Schuh [handwritten]; *Fulvius major* Schmitz, G. Schmitz det. 1970; female: Yaounde, St. de Nkolbisson, 4—III—67; Mus Paris; *Fulvius major* Schmitz, G. Schmitz det. 1970; male and female: Musee du Congo Arebi (Bondo-Moto), 22 VII- 1925 Dr. H. Schouteden; male: Musee du Congo, Lulua: Kapanga, — II — 1933, F. G. Overlaet; male: Musee du Congo, Haut Uele: Moto, 1920, J. Burgeon; female: Musee du Congo, Haut-Uele: Moto, — 1923, L. Burgeon. All housed in MRAC.

Diagnosis: Among other representatives of the genus it can be distinguished by large size and coloration.

Redescription: Female. Body elongated, chestnut to dark brown, almost unicoloured, length of the body 5.50—6.0 mm, width 1.45—1.82 mm. Head brown, eyes distinctly removed from the anterior margin of pronotum (Fig. 24), vertex with a longitudinal sulcus. Length of head 0.83—1.0 mm, width 0.72—0.78 mm, diameter of eye 0.26—0.28 mm. The first antennal segment long, thin, chestnut, covered with short setae, second segment brown to dark brown, pale in the apical part, thin, slightly thickened towards the apex, covered with dense, short setae, third and fourth segments very thin, dark, covered with dense setae. Length of antennal segments in mm: 0.62—0.78: 1.20—1.45: 0.70—0.78 (1.43 — third and fourth together). Rostrum thin, brown, reaching beyond metacoxae, length of rostral segments in mm: 0.72: 1.0: 0.91: 0.52.

Pronotum shining, brown, covered sparingly with very short setae. Anterior lobe of pronotum slightly raised, with a thin, longitudinal sulcus in the middle, posterior margin with a deep incision, humeral angles elevated. Length of pronotum 0.78—0.80 mm, anterior margin 0.52—0.65 mm, lateral margins 0.78—0.93 mm, posterior margin 1.20—1.50 mm. Mesoscutum well exposed, chestnut to brown, scutellum brown.

Hemelytra brown to dark brown, in some specimens slightly paler on sides of clavus, clavus brown to dark brown, in some cases paler in the middle and in the apical part, anal vein and medial fracture rib-like, corium slightly paler and tinged with red above cuneus, cuneus thin, very long, unicoloured, brown to dark brown or pale at apex and at base. Membrane grey to dark, venation well marked, major cell triangular with a long stub.

Underside of the body chestnut to very dark, tinged with red. Legs brown, very long, tarsi two-segmented, claws without a subapical tooth.

Male similar to female but smaller.

Distribution: Angola, Cameroon, Congo (Brazzaville), Congo (Kinshasa), Ivory Coast, Central African Republic, Sudan.

Fulvius pictus pictus Distant

Fulvius pictus Distant, 1913: 181
Fulvius pictus: Bergroth, 1920: 76; Carvalho, 1957: 18; Schuh, 1995: 28

Type material examined:

Holotype (male): Type [circular, white label with red margin]; Silhouette, 08, Seychelles Exp; Seychelle Islands. Percy Sladen Trust Expedition 1911—497; *Fulvius pictus*, type, Dist. [old, handwritten label]; paratype (female): Silhouette, 08, Seychelles Exp; Allotype [white, circular label with red margin]; Allotype [pink label]; Seychelle Islands. Percy Sladen Trust Expedition 1911—497; G. Schmitz det. 1967, *Fulvius pictus* Dist., Allotype; 67591 — symbol of female. Both housed in BMNH.

Other material examined

Male: Seychelle Islands. Percy Sladen Trust Expedition1911—497; Silhouette, 08, Seychelles Exp.; G. Schmitz det. 1967, *Fulvius pictus* Distant [handwritten]; 67592 — symbol of male; female: Silhouette, 08, Seychelles Exp.; Seychelle Islands. Percy Sladen Trust Expedition 1911—497; *Fulvius pictus* Distant, det. J. Gorczyca. Both in BMNH.

Diagnosis: This form is similar to the Oriental species *Fulvius tagalicus* Poppius and *Fulvius nigricornis* Popp., but differs from both in pale spots on head contiguous with pronotal collar and dark brown second antennal segment.

Redescription: Male. Body small, brown to dark brown, covered with dense, white, scale-like setae, length of the body 2.50 mm, width 0.90 mm. Head brown with a pale, broad, longitudinal stripe in the middle and with paler areas contiguous with pronotal collar. Length of head 0.40 mm, width 0.40 mm, diameter of eye 0.08 mm. Eyes slightly removed from pronotal collar, antennae slightly removed from the margins of eyes. First antennal segment dark brown with a pale stripe, slightly tinged with red, second segment pale brown, dark brown in the apical third, thickened towards the apex. Length of antennal segments in mm: 0.30: 0.65 (remaining segments broken in the examined specimens). Rostrum reaching beyond metacoxae, hardly visible in the examined specimens.

Pronotal collar brown, relatively broad, pronotum brown, anterior lobe slightly raised, with a thin, longitudinal sulcus in the middle. Posterior lobe with two triangular, paler patches, contiguous with posterior margin. Length of pronotum 0.30 mm, anterior margin 0.40 mm, lateral margins 0.44 mm, posterior margin 0.78 mm. Mesoscutum and scutellum unicoloured, dark brown.

Hemelytra brown to dark brown in the distal part, covered with dense, white, scale-like setae. Embolium paler at base then dark brown, with a large, white patch contiguous with costal fracture, corium with a small paler patch near claval suture.

Underside of the body dark brown, coxae pale, femora dark brown, covered with dense, scale-like setae, tibiae and tarsi pale, tarsi two-segmented with a subapical tooth.

Female. Similar to male but bigger, second antennal segment only slightly darkened in the apical part. Length of the body 2.80 mm, width 1.17 mm, length of head 0.46 mm, width 0.46 mm, diameter of eye 0.09 mm. Length of antennal segments in mm: 0.33: 0.78: 0.26: 0.33. Third and fourth segments very thin and dark.

Length of pronotum 0.39 mm, anterior margin 0.44 mm, lateral margins 0.41 mm, posterior margin 0.91 mm.

Distribution: The Seychelle Islands: Silhouette.

Fulvius pictus nigritus ssp. nov.

Type material

Holotype (male): Seychellen, Mahe, Sans Souci Rd, XI — 94 — Heiss; paratype (male): same data as the holotype; paratypes (five females and one male): same data as the holotype; paratype (male): Seychelles, Mt. Flean, 29: XII: 1971, Mahe, P. J. L. Roche. Holotype housed in SU, two paratypes in JGC, two paratypes in TLI, one in BMNH, one in LC, two in MRAC.

Diagnosis: This subspecies can be distinguished from *Fulvius pictus pictus* Distant by almost black antennae and pronotum without paler patches.

Description: Male. Body small, dark brown to almost black, with slightly paler patches, covered with dense, pale, fitting setae, length of the body 2.80—2.85 mm, width 0.90 mm. Head dark brown, almost black, with two paler spots before eyes and in some specimens with a paler, longitudinal stripe. Vertex with a thin, longitudinal sulcus in the middle, eyes relatively small, in top view almost contiguous with pronotal collar. Length of head 0.50 mm, width 0.49 mm, diameter of eye 0.15 mm. Antennae on tubercles almost contiguous with the margin of eye, length of antennal segments in mm: 0.39: 0.83: 0.36: 0.46. Rostrum thin, dark brown, reaching beyond metacoxae.

Pronotum and pronotal collar unicoloured, dark brown, almost black. Length of pronotum 0.35 mm, anterior margin 0.42 mm, lateral margins 0.44 mm, posterior margin 0.85 mm. Mesoscutum and scutellum unicoloured, almost black.

Hemelytra dark, covered with dense, pale, scale-like setae, paler at base and with a pale patch in the middle of corium, near claval suture. Embolium paler at base, darkened towards the distal part, with a big white patch contiguous with costal fracture. Membrane dark grey, venation dark, indistinct.

Underside of the body dark, coxae and femora dark, the apex of femora slightly tinged with red, fore- and mesotibiae dark at base then pale, metatibiae and tarsi pale, tarsi two-segmented, claws with a subapical tooth.

Female. Similar to male but bigger, length of the body 3.25—3.50 mm, width 1.0—1.1 mm, length of head 0.49 mm, width 0.49 mm, diameter of eye 0.13 mm. Length of antennal segments in mm: 0.39: 0.80: 0.23: 0.49. Length

of pronotum 0.47 mm, anterior margin 0.44 mm, lateral margins 0.52 mm, posterior margin 0.96 mm.

Distribution: The Seychelle Islands: Mahe.

Fulvius subnitens Poppius

Fulvius subnitens Poppius, 1909: 30, 34
Fulvius subnitens: Bergroth, 1920: 77; Carvalho, 1957: 19, 1980a: 644, 1980b: 652; Carvalho & Lorenzato, 1978: 139; Schuh, 1995: 29

Type material examined

Lectotype (male) — designated by Carvalho & Lorenzato, 1978: New Guinea, Mer., Bujakori, 1890; *Fulvius subnitens* Poppius; Museum Zool. Helsingfors, type no. 9993, (ZMHU); paralectotype (?): N. Guinea, Biro; Stephansort, Astrolabe Bay; *Fulvius subnitens* n. sp. [old handwritten], B. Poppius det; Typus [white label with red margin], (HNHM).

Other material examined

Three females: Tanzania, East Usambara, Amani, 1000 m, 1. ii. 1977; Zool. Mus. Copenhagen, H. Enghoff, O. Lombholdt, O. Martin leg.; one male: the same data as females, housed in ZMC; 14 males and 3 females: Sechellen, Mahe, Sans Souci Rd., XI-94, Heiss. Three specimens in TLI, the rest in JGC.

Diagnosis: This species can be distinguished by the pale base of hemelytra, the pale apex of clavus, an orange patch above cuneus and antennae pale in two apical thirds, as well as very long tarsi and claws not toothed subapically.

Redescription: Male. Body brown, shining, covered with dense, pale, fine setae, length of the body 2.90—3.15 mm, width 0.91—0.95 mm. Head unicoloured, dark brown, clypeus and mandibular plate sometimes slightly paler, eyes contiguous with pronotal collar. Length of head 0.54—0.56 mm, width 0.52 mm, diameter of eye 0.13 mm. Antennae contiguous with the margin of eye, first segment dark brown, slightly paler at apex, second segment pale at base, then dark brown to one third and pale again, thickened towards the apex, covered with pale, dense setae. Third and fourth segments thin, long, dark, covered with protruding setae. Length of antennal segments in mm: 0.49—0.50: 0.90—0.91: 0.70: 0.91. Rostrum very long, reaching almost the end of pygophor, brown, second segment paler, length of rostral segments in mm: 0.52: 0.65: 0.70: 0.46.

Pronotal collar brown, pronotum dark brown, covered with dense, pale setae, calli confluent, anterior lobe of pronotum with a longitudinal sulcus in the middle, posterior margin with a small incision. Length of pronotum 0.41 mm, anterior margin 0.41 mm, lateral margins 0.52 mm, posterior margin 0.91 mm. Mesoscutum slightly paler than scutellum, sometimes tinged with red, scutellum flat, dark brown.

Hemelytra brown, pale at base, clavus pale at base and at apex, embolium narrow, tinged with red in the apical part, corium dark brown, covered with dense, pale setae, with a large orange or reddish patch above cuneus, cuneus thin, dark, sometimes tinged with red. Membrane dark grey, venation indistinct.

Underside of the body dark brown to almost black with chestnut and reddish areas, forecoxae dark, meso- and metacoxae white, femora long, red at apex, covered with short setae, tibiae and tarsi unicoloured, pale, covered with dense setae, tarsi very long, second segment divided, almost twice as long as the first, claws not toothed subapically.

Left paramere distinctly curved, right paramere very small, aedeagus elongated (CARVALHO & LORENZATO, 1978, Figs 59—61).

Female similar to male but bigger, rostrum shorter, reaching the base of abdomen, length of the body 3.38—3.51 mm, width 1.10—1.17 mm.

Distribution: Papua New Guinea, New Britain (CARVALHO & LORENZATO, 1978), Tanzania, the Seychelle Islands.

Remarks. This species, described on the basis of specimens collected in Papua New Guinea, has probably been introduced in the Afrotropical Region. In my collections there are also specimens of this species from the Oriental Region and Fiji.

Fulvius tanzanicus sp. nov.

Type material

Holotype (male): Tanzanie: Mts. Uluguru, Kimboza for heliophile, alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts. Uluguru, L. Berger, N. Leleup, J. Debecker V/VIII/71; holotypus [pink label]; G. Schmitz det. 1973, *Fulvius tanzaniae* sp. n. [handwritten]; paratype (female): paratypus; Tanzanie: Mts. Uluguru, Kimboza for heliophile, alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts. Uluguru, L. Berger, N. Leleup, J. Debecker V/VIII/71; G. Schmitz det. 1973, *Fulvius tanzaniae* sp. n. [handwritten]; paratype (female): Tanzanie: Mts. Uluguru, Kimboza for heliophile, alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts. Uluguru, L. Berger, N. Leleup, J. Debecker V/VIII/71; paratypus [pink label]; G. Schmitz det. 1973, *Fulvius tanzaniae* sp. n. [handwritten]; paratypes (two male): Tanzanie: Mts. Uluguru, Kimboza for heliophile, alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts. Uluguru, L. Berger, N. Leleup, J. Debecker V/VIII/71; paratypus [pink label]; G. Schmitz det. 1973, *Fulvius tanzaniae* sp. n. [handwritten]; paratype (female): Tanzanie: Mts. Uluguru, Kimboza for heliophile, alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts. Uluguru, L. Berger, N. Leleup, J. Debecker V/VIII/71; allotypus [pink label]; G. Schmitz det. 1973, *Fulvius tanzaniae* sp. n. [handwritten]. Holotype and four paratypes in MRAC, one paratype in JGC.

Diagnosis: This species is slightly similar to *F. anthocoroides* (Reut.) but it can be distinguished from the latter by small size, the anterior lobe of pronotum distinctly raised, and the colour pattern of hemelytra.

Description: Male. Body small, brown with pale areas, covered with pale, dense, fine setae, length of the body 2.6—2.67 mm, width 0.85—0.9 mm. Head unicoloured, brown, mandibular plate slightly paler, eyes small, contiguous with pronotal collar, vertex with a small depression in the middle. Length of head 0.41 mm, width 0.44 mm, diameter of eye 0.10 mm. Antennae contiguous with the margins of eyes, first segment dark brown, covered sparingly with short setae, second segment brown, covered with dense, short setae, slightly thickened towards the apex, the apical third white. Third and fourth segments very thin, brown, covered with pale, protruding setae, length of antennal segments in mm: 0.26: 0.83: 0.33: 0.59. Rostrum long, reaching the end of pygophor, second segment paler, length of rostral segments in mm: 0.39: 0.78: 0.52: 0.31.

Pronotal collar thin, paler than pronotum, pronotum dark brown, humeral angles elevated, posterior margin with an incision. Length of pronotum 0.35 mm, anterior margin 0.39 mm, lateral margins 0.44 mm, posterior margin 0.83 mm. Anterior lobe of pronotum raised, calli separated by a long, thin, longitudinal furrow, mesoscutum and scutellum unicoloured, brown.

Hemelytra brown, pale at base and with a big paler patch contiguous with claval suture, clavus pale at base and in the middle. Embolium narrow, pale at base and in the middle, there is a white, triangular patch above cuneus, cuneus unicoloured, brown. Membrane grey, venation distinct, major cell triangular.

Underside of the body brown, forecoxae brown, meso- and metacoxae pale, femora brown, tibiae pale brown, metatibiae the palest, tarsi pale, long, two-segmented, claws very slender with a distinct subapical tooth.

Female similar to male, length of the body 2.85—3.0 mm, width 0.95—0.98 mm. Length of head 0.46 mm, width 0.49 mm, diameter of eye 0.10 mm. Length of antennal segments in mm: 0.28: 0.83: 0.33 (fourth segment broken in the examined specimens). Rostrum reaching beyond the mid of abdomen, not well visible in the examined specimens.

Length of pronotum 0.44 mm, anterior margin 0.41 mm, lateral margins 0.46 mm, posterior margin 0.85 mm.

Distribution: Tanzania.

Fulvius unicolor Poppius

Fulvius unicolor Poppius, 1909: 29, 36
Fulvius unicolor: 1912: 167; Bergroth, 1920: 77; Carvalho, 1957: 19; Schuh, 1995: 29; Gorczyca, 1997a: 563
nec *Fulvius unicolor*: Carvalho & Lorenzato, 1978: 140

Type material examined

Holotype: *F. unicolor* n. sp. [handwritten, old label]; Bismarksburg, Adeli, VII—IX. 90 [1890], Togo, Buttner [handwritten old label]; Mus. Zool. H:fords, Spec. typ. No12103, *Fulvius unicolor* Poppius; Mus. Zool. Helsinki [yellow label]; holotypus [pink label]; Prep. 674\171 (ZMHU); slide: Mus. Cong.: *Fulvius unicolor* Poppius, Holotype, genitalia, 674\171 (ZMHU).

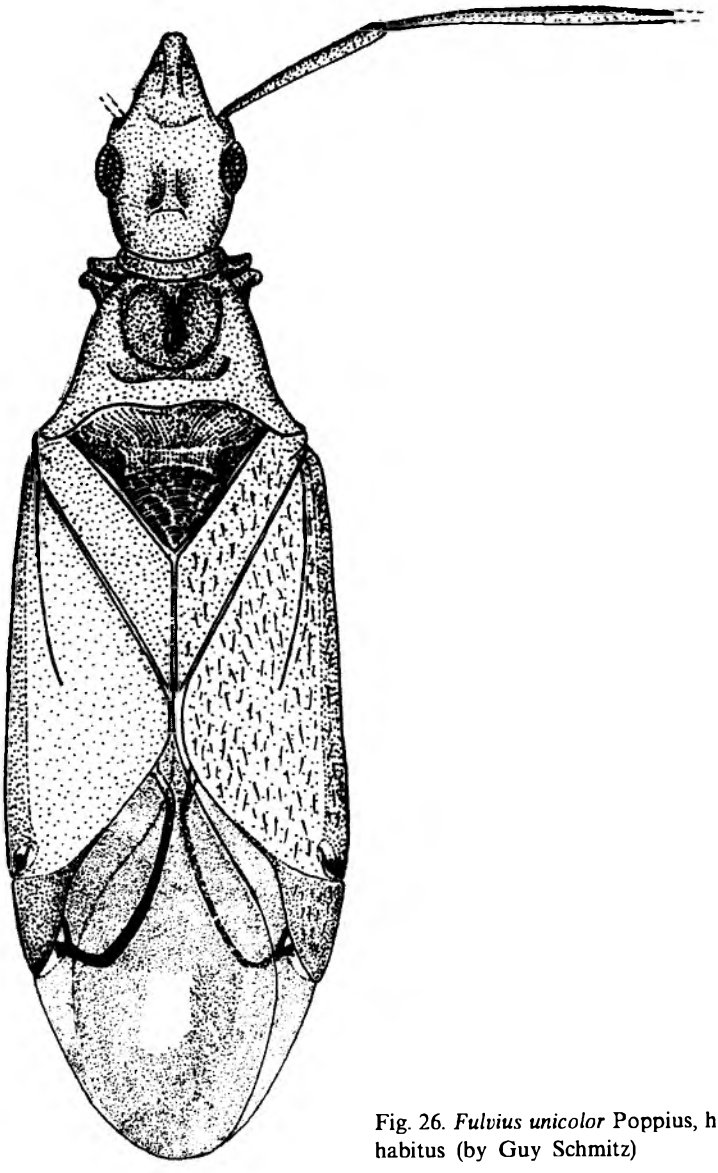


Fig. 26. *Fulvius unicolor* Poppius, holotype, male, dorsal habitus (by Guy Schmitz)

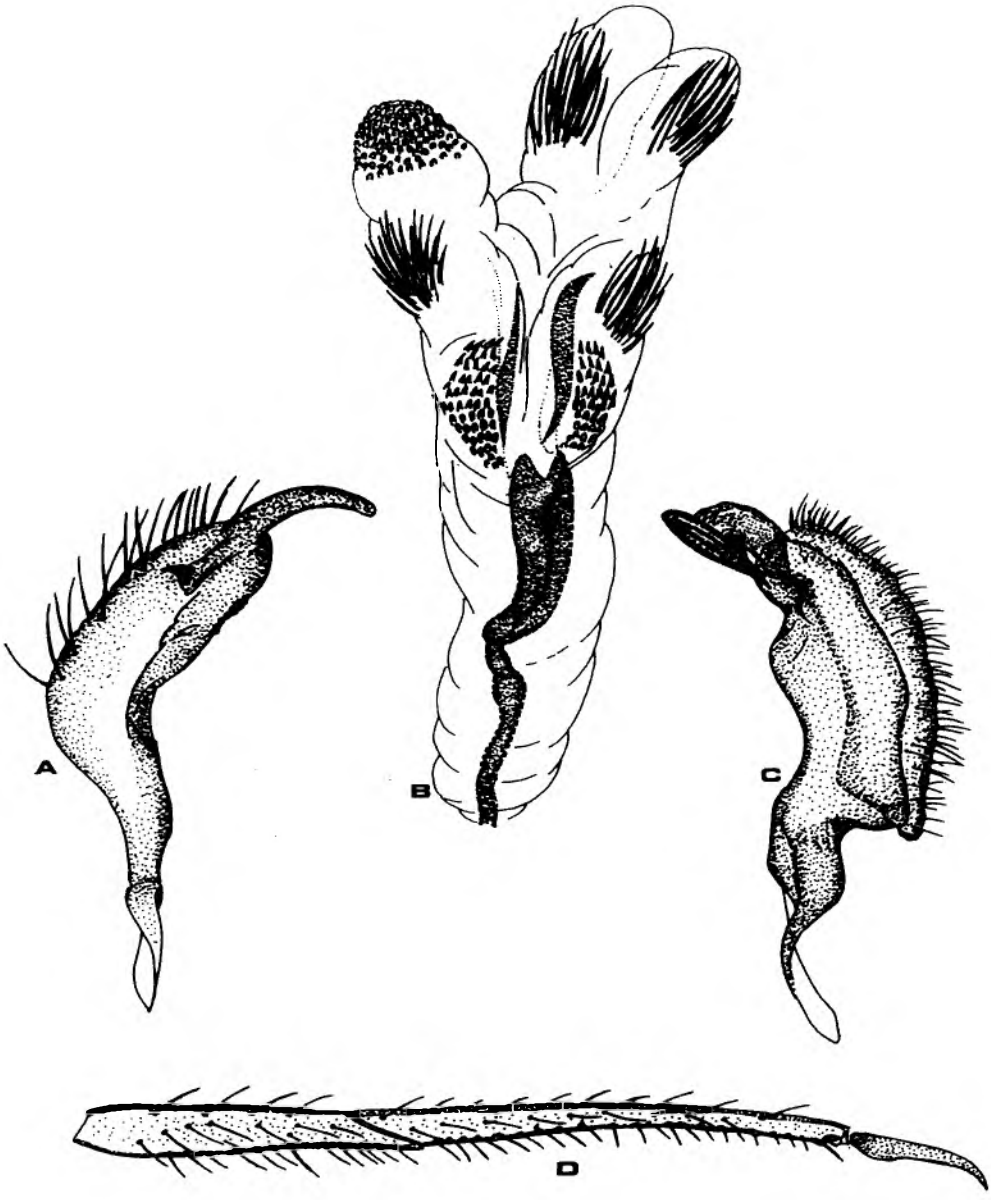


Fig. 27A—D. *Fulvius unicolor* Poppius, A — right paramere, B — aedeagus, C — left paramere, D — metatarsi (by Guy Schmitz)

Other material examined

Male: Mission Zoolog. I. R. S. A. C. an Afrique orientale, (P. Basilewsky et N. Leleup); Coll. Mus. Congo, Tanganyika Terr., Bunduki, Uluguru Mts., 1300 m.,

2—V—1957; Vest foret ombrophile, dans l'humus; *Fulvius unicolor* Poppius [handwritten], G. Schmitz det. 1970. (MRAC).

Diagnosis: Very similar to *Fulvius major* Schmitz, but it can be distinguished by brown, almost unicoloured body and brown unicoloured antennae.

Redescription: Male (female unknown). Body elongated, unicoloured, brown, length of the body 4.3—4.9 mm, width 1.2—1.3 mm. Head elongated, brown, eyes small, distinctly removed from pronotal collar (Fig. 26), vertex with a thin, longitudinal sulcus in the middle, length of head 0.72 mm, width 0.59 mm, diameter of eye 0.13 mm. Antennae unicoloured, brown, inserted on tubercles almost contiguous with the margins of eyes, first antennal segment long, thin, second segment covered with short setae, slightly thickened towards the apex, third segment very thin. Length of antennal segments in mm: 0.62—0.65: 1.0—1.17: 0.53 (fourth segment broken in the examined specimens). Rostrum thin, brown, length of rostral segments in mm: 0.52: 0.78: 0.90: 0.46.

Pronotum dark brown, pronotal collar very thin, calli distinctly raised, separated by a longitudinal furrow. The humeral angles elevated, posterior margin with a broad incision. Length of pronotum 0.54 mm, anterior margin 0.44 mm, lateral margins 0.56 mm, posterior margin 0.88 mm. Mesoscutum and scutellum dark brown.

Hemelytra dark brown, embolium very narrow, apex of clavus slightly paler, there is also a small, paler patch above cuneus, cuneus long, unicoloured, brown. Membrane brown to dark brown, major cell rounded without a stub.

Underside of the body dark brown, legs brown, metatibiae paler in the distal part, tarsi two-segmented, claws not toothed subapically (Fig. 27D).

Distribution: Togo, Tanzania.

Remarks. This species was also reported from Papua New Guinea, New Britain and New Ireland (CARVALHO & LORENZATO, 1978). After examination of the specimens deposited in BPBM it has been established that the description presented by the authors referred in fact to another new species — *Fulvius carvalhoi* sp. n., which can be distinguished from *F. unicolor* Poppius by bigger eyes and the shape of parameres and aedeagus (Figs 27A—C; CARVALHO & LORENZATO, 1978, Figs 63—65).

Fulvius carvalhoi sp. nov.

Type material

Holotype (female): New Britain, Gazelle Pen., Mt. Sinewit, 900 m, 5—9. XI. 1962; J. Sedlacek, Malaise trap, Bishop; paratype (female): same data as holotype; paratype (female): New Britain, Gazelle Pen., Mt. Sinewit, 900 m, 5—9. XI. 1962; J. Sedlacek,

Malaise trap, Bishop; *Fulvius unicolor* Popp., det. J. C. M. Carvalho; paratype (female): New Britain, Gazelle Pen., Mt. Sinewit, 900 m, 5—10. XI. 1962; J. Sedlacek, Malaise trap, Bishop; *Fulvius unicolor* Popp., det. J. C. M. Carvalho; paratype (female): New Britain, Gazelle Pen., Mt. Sinewit, 900 m, 5—9. XI. 1962; *Fulvius unicolor* Popp., det. J. C. M. Carvalho; two paratypes (female): New Irland (SW), Ridge above "Carp Rishop" 15 km. up Kait R., 250 m, VII—13—1956; J. L. Gressit Cillector, Bishop Museum. one paratype in JGC, holotype and the rest of paratypes in BPBM.

Etymology: Named in honour of the late Dr. J. C. M. Carvalho, Brazil.
Distribution: Papua New Guinea, New Britain, New Ireland.

Fulvius webbi sp. nov.

Type material

Holotype (male): Under bark of decaying *Mimosa.*; Abyssinia: Djem-Djem Forest., nearly 9000ft.1. x. 1926., Dr. H. Scott.; paratype (female): Box 28; Abyssinia Djem — Djem Forest, circa 8,000 ft., 25—29. ix 1926, Dr. H. Scott. Both in BMNH.

Etymology: This species is named in honour of Dr. Mick Webb, UK.
Diagnosis: This species is similar to *F. kajae* but it can be distinguished by bigger size, unicoloured second antennal segment and hemelytra with short, only slightly marked, pale, longitudinal stripes.
Description: Female. Body brown, covered with dense, short setae, length of the body 3.90 mm, width 1.64 mm. Head dark brown, covered with short, dark, scale-like setae, eyes relatively small in top view, covered with dark, very short setae. Vertex with a longitudinal sulcus in the middle. Length of head 0.55 mm, width 1.64 mm, diameter of eye 0.13 mm. Antennal tubercles slightly removed from the margin of eye, antennae unicoloured, brown, first segment relatively thick, sparingly covered with setae, second segment thin at base and slightly thickened towards the apex, covered with dense, short, pale setae. Fourth segment thick at base, narrowed apically, third and fourth segments covered with long, pale, semi-erect setae. Length of antennal segments in mm: 0.42: 1.0: 0.31: 0.23. Rostrum brown, reaching the fourth segment of abdomen, first rostral segment paler, shorter than head.

Pronotal collar distinct, dark brown, pronotum dark brown, calli slightly paler, with a longitudinal sulcus between them. Pronotum covered with dense, short, dark, scale-like setae, humeral angles of pronotum slightly elevated, posterior margin of pronotum with an incision. Length of pronotum 0.42 mm, anterior margin 0.47 mm, lateral margins 0.55 mm, posterior margin 1.14 mm. Mesoscutum and scutellum dark brown, mesoscutum with an oblique carina on sides, the apex of scutellum white.

Hemelytra paler than pronotum, covered with dense, short setae and scale-like setae, embolium slightly elevated. R + M, medial fracture and claval

vein distinct, rib-like and slightly paler, at least at base. Corium with a distinct white patch above cuneus, cuneus short, broad, brown. Membrane grey, venation dark, distinct, major cell triangular.

Underside of the body chestnut, meso- and metacoxae pale, the rest of legs unicoloured, brown, tarsi slightly paler, two-segmented, with a distinct subapical tooth.

Male in general coloration similar to female but smaller, length of the body 3.0 mm, width 1.13 mm, length of head 0.57 mm, width 0.54 mm, diameter of eye 0.13 mm, first antennal segment 0.39 mm, remaining segments broken in the examined specimens. Length of pronotum 0.34 mm, anterior margin 0.46 mm, lateral margins 0.47 mm, posterior margin 1.0 mm.

Distribution: Ethiopia.

Hemiophthalmocoris Poppius

Type species: *Hemiophthalmocoris lugubris* Poppius, 1912 (monotypy)

Hemiophthalmocoris Poppius, 1912: 174

Hemiophthalmocoris: Bergroth, 1920: 77; Carvalho, 1952b: 48; Carvalho, 1955a: 18; Carvalho, 1957: 20; Schmitz, 1970: 505; Linnavuori, 1975: 6; Schuh, 1995: 30

Diagnosis: This genus can be distinguished by relatively small eyes contiguous with pronotal collar and always covered with setae longer than the diameter of ommatidium, cylindrical antennal segments, almost unicoloured body, broad pronotum with flat or only slightly elevated lateral margins, and (in macropteruous forms) long, thin, very characteristic cuneus (Figs 28, 31A, 34B). Claws not toothed subapically with a very characteristic, long, sharp spine at the base of their inner surface (Figs 34C—D).

Redescription: Body unicoloured, pale brown to almost black, elongated to oval, smooth, covered with dense, erect and semi-erect setae, vertex distinctly convex, eyes contiguous with pronotal collar, covered with setae longer than the diameter of ommatidium, antennae thin, tapering, inserted on tubercles contiguous with or more or less removed from the margins of eyes, individual segments cylindrical, rostrum long, usually reaching the end of abdomen, first segment longer than head in lateral view and distinctly thickened at apex.

Pronotal collar distinct or invisible, pronotum broad, flat, usually with a longitudinal sulcus in the callar area, anterior lobe only slightly separated and raised, mesoscutum well exposed in macropterous forms.

Hemelytra well developed or abbreviated, embolium usually very narrow, cuneus thin and long, membrane bicellulated, but in some species minor cell invisible.

Tarsi relatively long, two-segmented, first segment very short, second segment divided, at least twice as long as the first, claws not toothed subapically, with a long spine on the inner surface.

No data on males have been published so far and for the present paper only a few male specimens were found and described. Parameres are very small, aedeagus membranous.

Distribution: So far reported only from Africa, but it occurs also in the Oriental Region (Gorczyca & Chérot in prep.).

KEY TO THE SPECIES OF *HEMIOPHTHALMOCORIS*

1. Pronotal collar much thinner than second antennal segment, pronotum broad, convex, lateral margins rounded 2
— Pronotal collar as thick as, or only slightly thinner than second antennal segment, pronotum usually narrower, lateral margins usually straight 4
2. Hemelytra and antennae dark brown ..... *buchaczi* sp. nov.
— Hemelytra and antennae pale brown 3
3. First antennal segment very long, only slightly shorter than the width of vertex ..... *convexus* sp. nov.
— First antennal segment short, distinctly shorter than the width of vertex ..... *frontalis* sp. nov.
4. Macropterous 6
— Brachypterous 5
5. Forewings long, covering entire abdomen, if not, then the posterior margin of pronotum almost straight, longitudinal sulcus on pronotum hardly visible ..... *asthenops* sp. nov.
— Elytra very short, the posterior margin of pronotum with an incision, longitudinal sulcus on pronotum very long, distinct .... *micropterus* sp. nov.
6. Small insects, length of body less than 3 mm 7
— Length of body more than 3 mm 8
7. Second antennal segment shorter than the width of head .... *minor* sp. nov.
— Second antennal segment equal or longer than the width of head ..... *parvulus* sp. nov.
8. Cuneus curved, enveloping membrane ..... *abbreviatus* sp. nov.
— Cuneus straight 9
9. Body and antennae dark brown, length of body no more than 4 mm ..... *caligans* Schmitz
— Body and antennae pale brown, length of body more than 4 mm 10
10. Major cell triangular ..... *lugubris* Poppius
— Major cell oval ..... *longirostris* Schmitz

Hemiophthalmocoris abbreviatus sp. nov.

Type material

Holotype (male): Coll. Mus. Congo, Tanganyika Terr.: Bunduki, Uluguru Mts., 1300 m., 2—V—1957; Vest foret, ombrophile, dans l'humus [grey blue label]; Mission Zoolog. I.R.S.A.C. an Afrique orientale (P. Basilewsky et N. Leleup); allotypus [pink label]; *Hemiophthalmocoris abbreviatus* sp. n. [handwritten], G. Schmitz det. 1968; paratype (female): Coll. Mus. Congo, Tanganyika Terr.: Bunduki, Uluguru Mts., 1300 m., 2—V—1957; Vest foret, ombrophile, dans l'humus [grey blue label]; Mission Zoolog. I.R.S.A.C. an Afrique orientale (P. Basilewsky et N. Leleup); holotypus [pink label]; *Hemiophthalmocoris abbreviatus* sp. n. [handwritten], G. Schmitz det. 1968. (MRAC).

Diagnosis: Among the other representatives of the genus it can be distinguished by dark brown body and cuneus reaching almost the end of membrane and almost enveloping it (Fig. 28).

Description: Male. Body mat, elongately oval, dark brown, covered with pale setae, length of the body 3 mm, width 1.27 mm. Head dark brown, length of head 0.54 mm, width 0.60 mm, diameter of eye 0.13 mm. First antennal segment dark brown, covered with dense, semierect setae, second segment slightly paler, thin, almost cylindrical, third segment slightly paler, almost as thick as second, fourth segment only slightly thinner than third, all segments covered with dense, semierect setae. Length of antennal segments in mm: 0.39: 0.91: 0.70: 0.47. Rostrum reaching pygophor, first segment thick, the thickest at apex, pale brown, remaining segments thin, pale brown, the apex of rostrum pale. Length of rostral segments in mm: 0.54: 0.52: 0.47: 0.62.

Pronotum, mesoscutum and scutellum dark brown, length of pronotum 0.49 mm, anterior margin 0.56 mm, lateral margins 0.55 mm, posterior margin 1.0 mm.

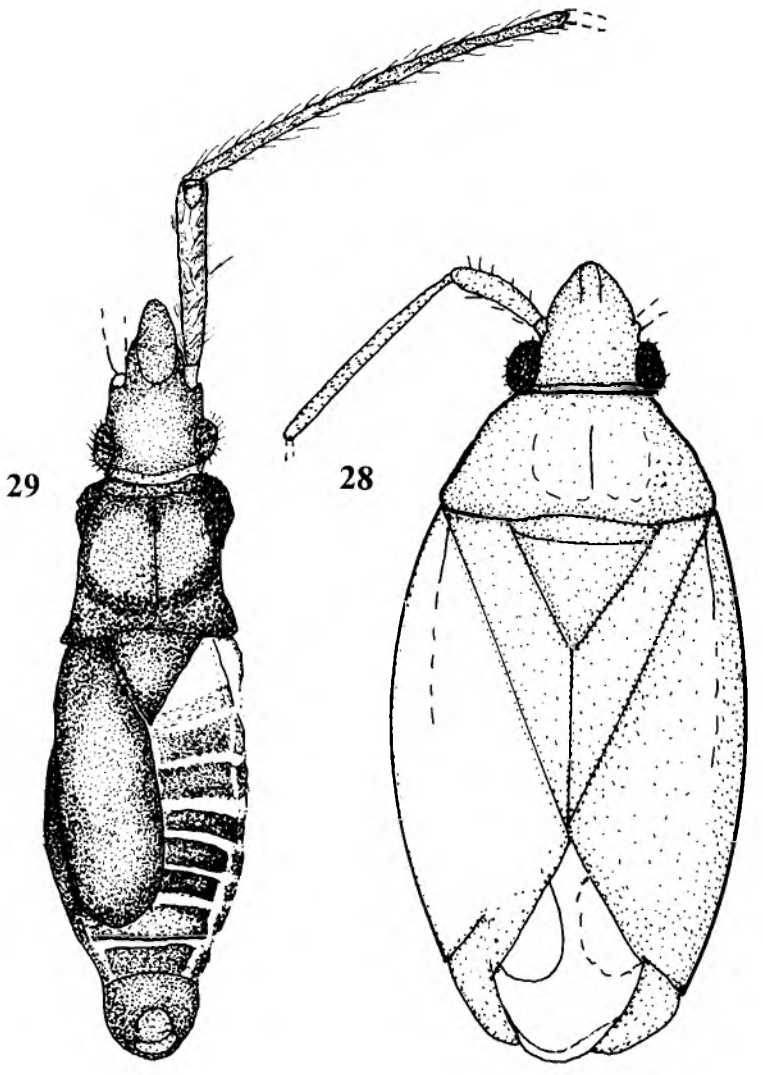
Hemelytra dark brown, cuneus thin, reaching almost the apex of membrane, membrane dark grey, venation brown, minor cell invisible in the examined specimens.

Underside of the body dark brown, coxae dark brown, paler at apex, femora dark brown, tibiae and tarsi pale.

Female bigger and more oval than male, coloration of the body the same, length of the body 3.60 mm, width 1.74 mm. Length of head 0.52 mm, width 0.73 mm, diameter of eye 0.13 mm. First antennal segment dark brown, the rest of antennae paler and tapering apically. Length of antennal segments in mm: 0.52: 0.91: 0.78: 0.62.

Length of pronotum 0.65 mm, anterior margin: 0.72 mm, lateral margins 0.65, posterior margin 1.30 mm.

Distribution: Tanzania.



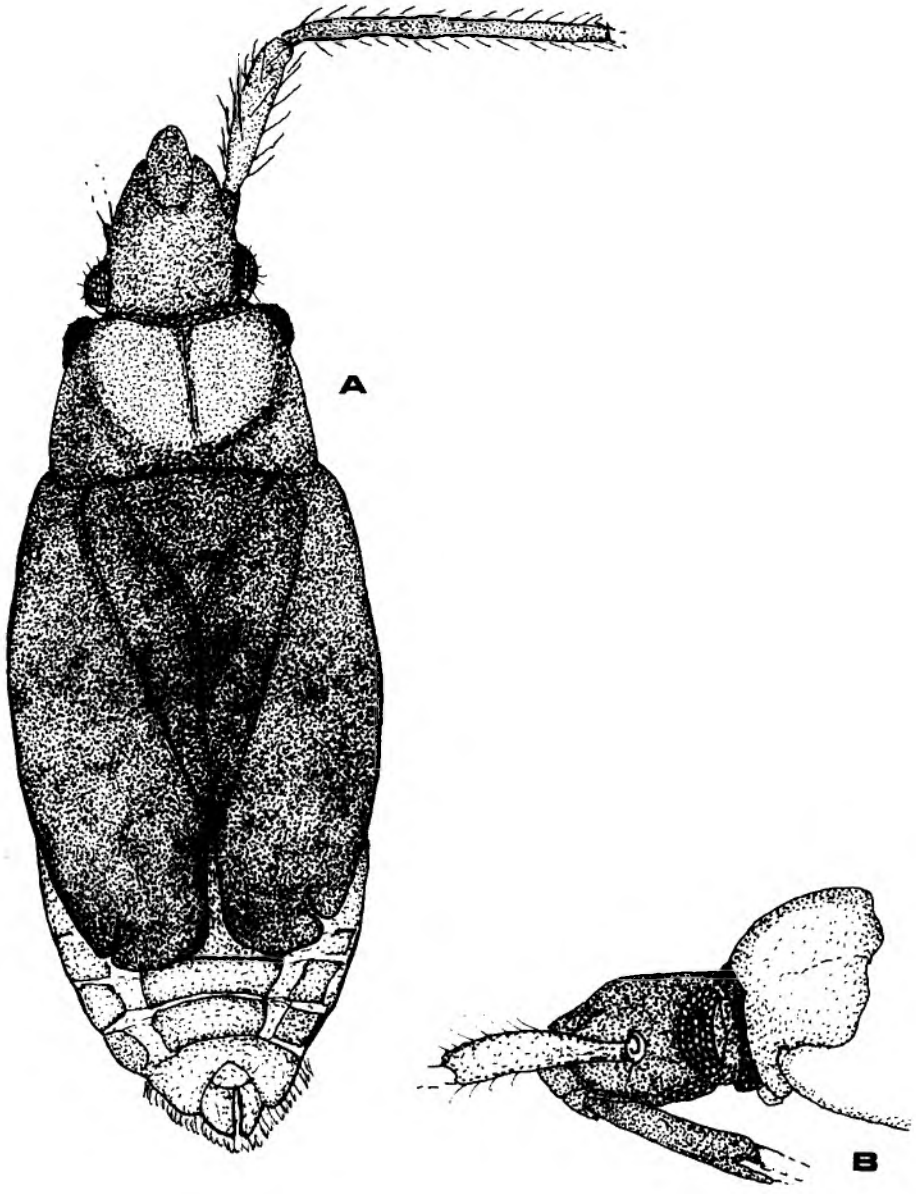
Figs 28—29. Dorsal habitus, 28 — *Hemiophthalmocoris abbreviatus* sp. nov., holotype; 29 — *Hemiophthalmocoris micropterus* sp. nov., holotype

Hemiophthalmocoris asthenops sp. nov.

Type material

Holotype: Coll. Mus. Congo, Kivu: Terr. Lubero 2200 m (for. montagne), I—1952, R. P. Celis; Recolte dans l'humue [pale green label]; paratypus [pink label]; *Hemiophthalmocoris asthenops* sp. n. [handwritten], G. Schmitz det. 1969; paratype: I.R.S.A.C. — Mus. Congo, Mont Kabobo, terr. Albertville, Hte Kiymbi 1850 m., B. 45, N. Lelup, X—1958; Biot. No 45, Humus en foret [yellow label]; holotypus [pink label];

Hemiophthalmocoris asthenops sp. n. [handwritten], G. Schmitz det. 1969; paratype: Foret de transition [pale blue label]; Coll. Mus. Congo, Tanganyika, Terr.: Uluguru, Mts., vall. Ululu-Ndogo, 1500 m., 8—V—1957; Mission Zoolog. I.R.S.A.C. en Afrique orientale (P. Basilewsky et N. Lelup); *Hemiophthalmocoris ashtenops* sp. n. ?, G. Schmitz det. 1969. All in MRAC.



Figs 30A—B. *Hemiophthalmocoris asthenops* sp. nov., paratype, A — dorsal habitus, B — head and pronotum from side

Diagnosis: This species can be distinguished by very thick first antennal segment, very small eyes (Figs 30A—B), and the straight posterior margin of pronotum. It is known only as a brachypterous form.

Description: Female (male unknown). Body small, elongated, dark brown, covered with pale and brown setae, length of the body 3.0—3.12 mm, width 1.17 mm. Head short, brown, eyes very small, reddish, length of head 0.52 mm, width 0.65 mm, diameter of eye 0.11 mm. Antenniferous tubercles distinctly removed from the margins of eyes, antennae brown, covered with dense setae, first antennal segment thick, second thin, slightly thickened at apex, fourth segment paler. Length of antennal segments in mm: 0.47: 0.78: 0.52: 0.57. Rostrum relatively short, reaching beyond metacoxae.

Pronotal collar thin, pronotum brown, anterior lobe slightly raised, with a very thin longitudinal sulcus in the middle, mesoscutum covered by pronotum, length of pronotum 0.52 mm, anterior margin 0.78 mm, lateral margins 0.62 mm, posterior margin 1.0 mm.

Forewings brown, brachypterous, in the holotype and paratype from Tanzania covering the end of abdomen, in the paratype from Congo reaching beyond the mid of abdomen (Fig. 30A), claval suture marked.

Underside of the body brown, coxae and femora brown, tibiae and tarsi pale to pale brown, there are five trichobothria with a very thin trich on the edge of mesofemora, metafemora bearing at least four long trichobothria, tarsi pale brown.

Distribution: Tanzania, Congo (Kinshasa).

Remarks. The paratype from Tanzania is smaller than the specimens from Congo. Since the specimen from Tanzania was prepared before my study and its abdomen was dissected, the dimensions are given only on the basis of the specimens from Congo.

Hemiophthalmocoris buchaczi sp. nov.

Type material

Holotype: UV. Trap [handwritten]; Tafo, Ghana, 14. VI. 67, D. Leston; D. Leston coll. B. M. 1976—509 (BMNH); paratype: Tafo, Ghana, 13: I: 66; UV Trap. in JGC.

Etymology: Named after my long-standing friend Dr. Piotr Buchacz.

Diagnosis: This species is similar to *H. convexus* but it can be distinguished by the dark body and darker and thinner antennal segments.

Description: Female (male unknown). Body dark brown, shining, covered with dense, pale, shining setae, length of the body 3.90 mm, width 1.56 mm. Head brown, vertex convex, length of head 0.52 mm, width 0.78 mm, diameter of eye 0.16 mm. Antennae almost contiguous with the margin of eye. First segment dark brown, very thin at base, second segment dark brown, covered

with dense, pale, short setae, third and fourth segments paler, covered with pale, semierect setae, longer than their diameter. Length of antennal segments in mm: 0.39: 0.91: 0.57: 0.44. Rostrum brown, relatively short, reaching beyond matacoxae.

Pronotum dark brown, slightly convex, anterior lobe with a short, thin, longitudinal sulcus, anterior and lateral margins rounded, posterior margin slightly concave. Length of pronotum 0.57 mm, anterior margin 0.65 mm, lateral margins 0.60 mm, posterior margin 1.30 mm. Mesoscutum and scutellum brown.

Hemelytra well developed, dark brown, covered with short setae, cuneus thin, long, membrane dark, venation indistinct, major cell rounded.

Underside of the body brown, abdomen pale brown, coxae and trochanters pale, femora pale brown, tibiae and tarsi pale.

Distribution: Ghana.

Hemiophthalmocoris caligans Schmitz

Hemiophthalmocoris caligans Schmitz, 1970: 509
Hemiophthalmocoris caligans: Schuh, 1995: 30

Type material examined

Holotype: holotypus [pink label]; Musee du Congo, Zamikuwe, 5. II. 1932 [handwritten], J. Vrydah; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; 6711—291, (MRAC); paratype: Odzala, Congo, X 1963; Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963—1964; paratypus; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; paratype: Odzala, Congo, X 1963; Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963—1964; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; paratypus; both in (MNHN); two paratypes: Coll. Mus. Tervuren, Cote d'Ivoire: Bingreville, VII, 1962 and IX, 1962, J. Decelle; paratypus [pink label]; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; paratype: Coll. Mus. Congo, Equateur: Bokuma, IX — 1952, R. P. Lootens; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; two paratypes: Sibiti, Congo, XI—1963; Museum Paris, Mission A. Descarpentries et A. Villiers, 1963—1964; paratypus [pink label]; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; paratype: Odzala, Congo, X 1963; Museum Paris, Mission A. Descarpentries et A. Villiers, 1963—1964; paratypus [pink label]; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1967; paratype: Ifan — 1946, M'Nimba N. E., 500—700 m, A. Villiers; paratypus; *Hemiophthalmocoris caligans* sp. n. [handwritten], G. Schmitz det. 1969. All in MRAC; paratype: Kamerun, Maliwe, 13. 4. 38 abends am Licht. Buhr; paratypus [pink label]; G. Schmitz det. 1967, *Hemiophthalmocoris caligans* sp. n. (MNHU); paratype: Univ. Centralafr., Exp. 1946—47, Mambasa, Kongo, 30/12 1946., st/5; *Hemiophthalmocoris caligans* sp. n., Schmitz det. 1967; paratypus [pink label]. In ZMC.

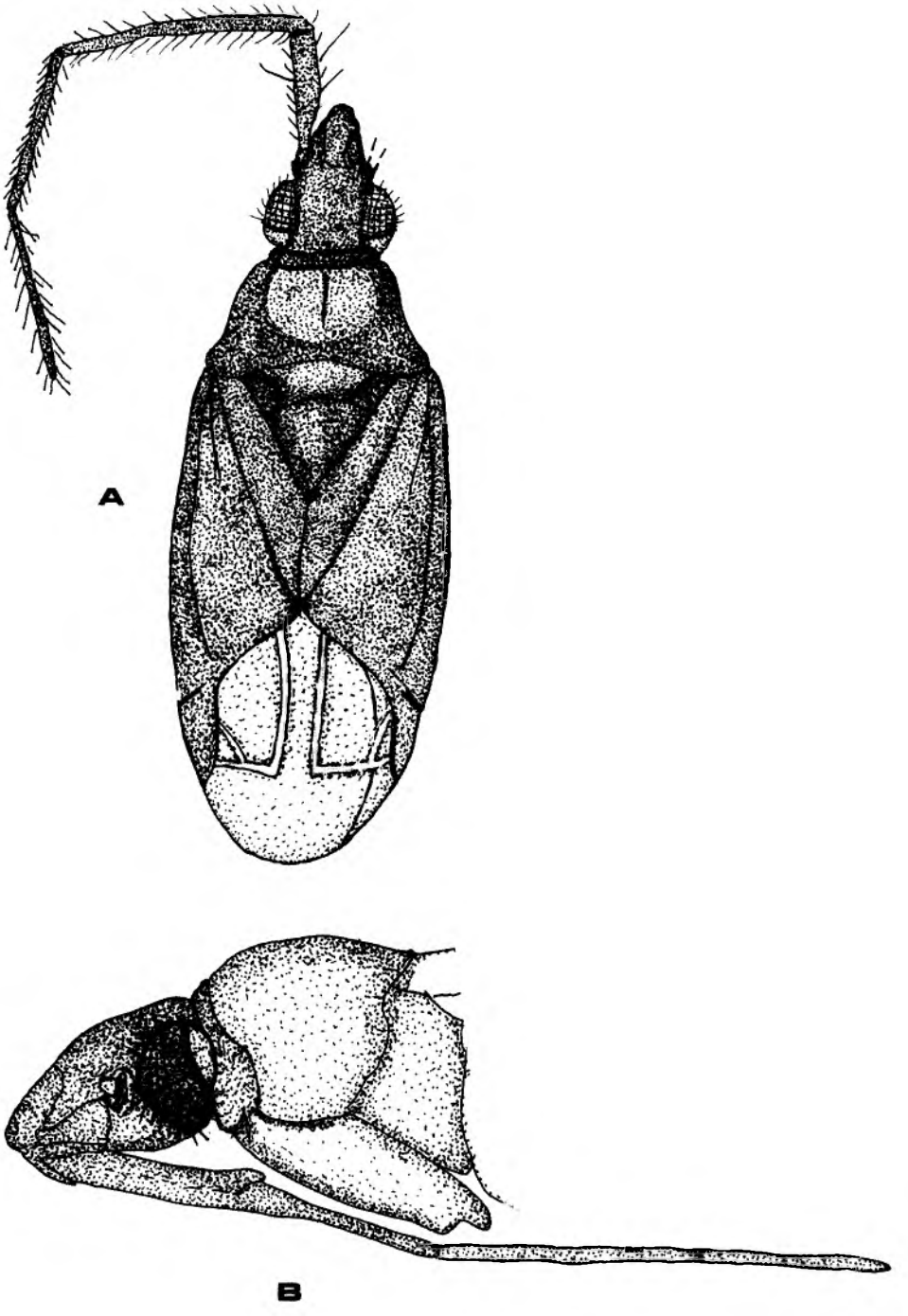
Other material examined

Female: Ghana: Tafo, 5 Oct. 1967, Ja & S. Slater, Toby Schuh; collected at ultraviolet light; Schuh; *Hemiophthalmocoris caligans* Schmitz, G. Schmitz det. 1969; female: Ile-Ife, Nigeria, 5. Jan 1970, Col. J.T. Medler; M-33; Coll. Mus. Tervuren; *Hemiophthalmocoris caligans* Schmitz, G. Schmitz det. 1973. Both in MRAC; fifteen females: Cameroon, Dimako, 12—13. VI. 73, Linnavuori; two females: Cameroon Kumba, 22. VI. 73, Linnavuori; thirteen females: Ivory Coast, Man, 14—21. X. 73, Linnavuori; four females: Ivory Coast, Adiopodoume, 29. IX—7. X. 73, Linnavuori; female: Ivory Coast, Lamto, 9—9. X. 73, Linnavuori; five females: Centr. Afr. Rep., La Maboke, 6—9. VI. 73, Linnavuori; female: UV Trap; Tafo, Ghana, 8: I: 66, Leston; D. Leston coll., B.M. 1976—509; female: u.v. trap; Tafo, Ghana, 21. VI. 67, D. Leston; D. Leston coll., B.M. 1976—509; four females: Nigeria R. St. Ebubu nr. Bori, 2. VII. 73, Linnavuori; three females: Nigeria M. W. St. Sapoba forest, 1—2. IX. 73, Linnavuori; female: Nigeria W. St., Ife, 7—8. VII. 14. VIII. 73, Linnavuori; female: Nigeria SE. St. Obudu Cattle Ranch, 20—27. VI., 16—18. VIII. 73, Linnavuori; two females: UV Trap; Tafo, Ghana, 6. I. 66; three females: Tafo, Ghana, 6. I. 66; UV Trap; four females: UV Trap; Tafo, Ghana, 8. I. 66; two females: Tafo, Ghana, 4 I. 66; At light; female: UV Trap; Tafo, Ghana, 23. I. 66; eight females: Tafo Ghana, 5. IX — 30 XII. 65; At light or UV Trap; two females: U. V. trap; 14. V. 67, 2: XI: 67. Fourteen specimens in JGC the rest in MRAC; female: Gold Coast, Bunsu, 2 May, 1943, H. H. Box; Coll in Prim. forest; Brit. Mus. 1951—196; female: u. v. — trap; Tafo, Ghana, 7. VIII. 67, Leston; Leston coll. B. M. 1976—509; in BMNH; female: Ile-Ife, Nigeria, 5 April 1969, col. J. T. Medler; *Hemiophthalmocoris caligans* Schmitz, G. Schmitz det. (LC).

Diagnosis: Among the representatives of the genus it can be distinguished by dark coloration of the body and the shape of pronotum (Fig. 31A—B).

Redescription: Female (male unknown). Body dark brown, covered with dark and pale setae, length of the body 3.50—4.0 mm, width 1.35—1.48 mm. Head dark brown, covered with long, dense, semi-erect setae, antennae inserted on tubercles contiguous with the margins of eyes. Length of head 0.52—0.54 mm, width 0.65—0.68 mm, diameter of eye 0.11—0.13 mm. Antennae tapering, first segment dark brown, almost cylindrical, covered with short, dark, semi-erect setae, second segment dark brown to pale brown, covered with very dense, short, pale, fine setae, third and fourth segments pale brown, covered with dense, pale setae. Length of antennal segments in mm: 0.46—0.52: 0.85—1.0: 0.62: 0.62. Rostrum brown to dark brown, reaching beyond the mid of abdomen.

Pronotal collar relatively broad, dark brown, pronotum, scutellum and mesoscutum dark brown, scutellum sometimes slightly paler, anterior lobe of pronotum only slightly raised, with a short, thin, longitudinal sulcus in the middle, posterior margin of pronotum with an incision. Length of pronotum 0.46 mm, anterior margin 0.54—0.57, lateral margins 0.54—0.59 mm, posterior margin 1.10—1.14 mm.



Figs 31A—B. *Hemiophthalmocoris caligans* Schmitz, A — dorsal habitus, B — head and thorax from sides

Hemelytra dark brown, cuneus thin and long, more than twice as long as its width at base, membrane dark, venation brown, distinct, major cell triangular.

Underside of the body brown to almost black, coxae dark to black, femora dark brown, tibiae and tarsi pale brown.

Distribution: Cameroon, Central African Republic, Congo (Brazzaville), Congo (Kinshasa), Ghana, Guinea, Ivory Coast, Nigeria.

Hemiophthalmocoris convexus sp. nov.

Type material

Holotype: Sudan, Equatoria, Layo-Juba, 26—27. II. 63, Linnavuori; paratypus [pink label]; *Hemiophthalmocoris* (*Labocoris*) *convexus* sp. n. [handwritten], G. Schmitz det. 1968. (MRAC); paratype (female): Sudan, Bahr el Ghazal — Wau, 19. II. 63, Linnavuori; *Hemiophthalmocoris* (*Lobocoris*) *convexus* subg. n. sp. n., G. Schmitz det. 1968; Exemplaire teratologique, Ant. III — IV fuscionnes [handwritten]; paratype: Sudan, Equatoria, Mundri, 24. II. 63, Linnavuori; paratype [pink label]; *Hemiophthalmocoris convexus* sp. n. G. Schmitz det. One paratype in JGC, one in LC.

Diagnosis: This species can be distinguished by the broad body, convex pronotum with the posterior margin with a slight incision, and a very thin pronotal collar (Fig. 32).

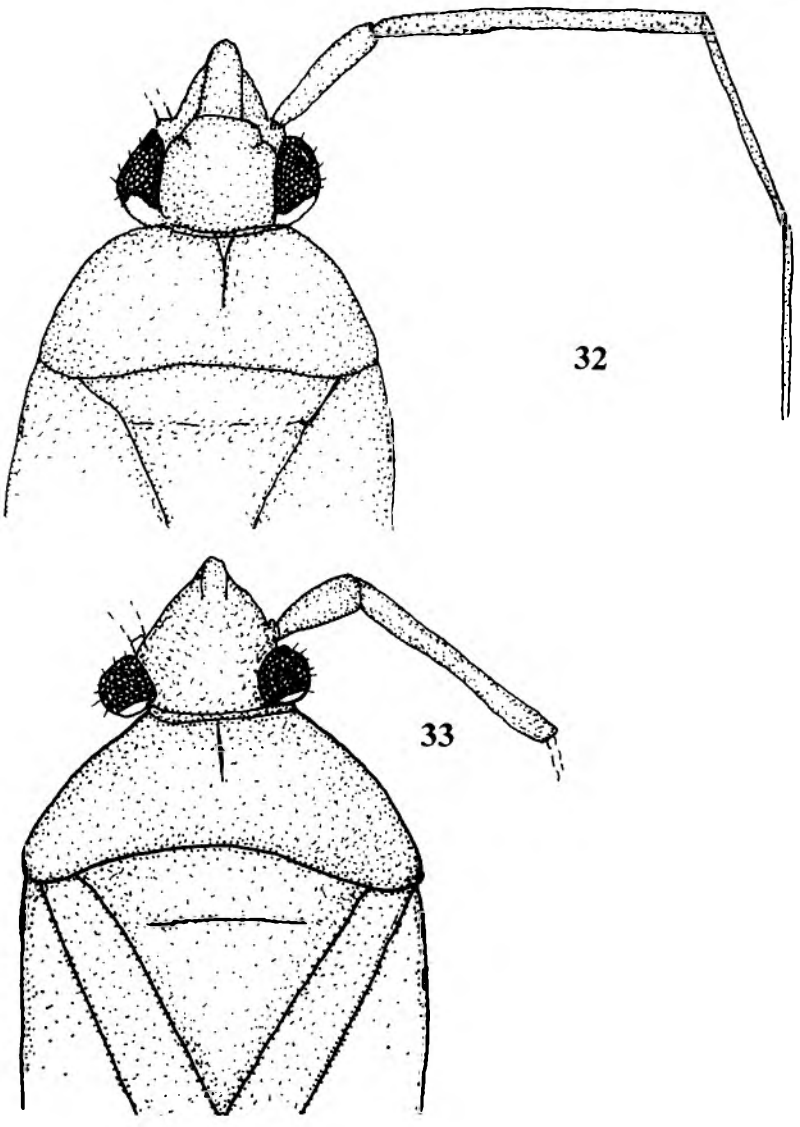
Descriptions: Female (male unknown). Body broad, stout, pale brown, covered with pale setae, length of the body 4.20 mm, width 1.70 mm. Head brown, vertex distinctly convex, length of head (in top view) 0.60 mm, width 0.83 mm, diameter of eyes 0.17 mm. Antennae brown, removed from the margin of eyes, second segment covered with short, dense, pale setae. Length of antennal segments in mm: 0.47: 1.27: 0.78 (fourth segment broken in the examined specimens). Rostrum pale brown, reaching at least subgenital plate.

Pronotum, mesoscutum and scutellum brown, pronotum broad, convex, covered with pale setae, anterior lobe with a slightly marked, longitudinal sulcus. Length of pronotum 0.60 mm, anterior margin 0.85 mm, lateral margins 0.62 mm, posterior margin 1.53 mm, posterior margin slightly concave.

Hemelytra brown, covered with pale setae, membrane pale but stained with glue in the examined specimen, so venation is not visible.

Underside of the body pale, legs pale, tarsi with a row of long, thick setae, first segment of tarsi very short.

Distribution: Sudan: Equatoria.



Figs 32—33. Head, pronotum and basal part of hemelytra, 32 — *Hemiophthalmocoris convexus* sp. nov., holotype; 33 — *H. frontalis* sp. nov., holotype

Hemiophthalmocoris frontalis sp. nov.

Type material

Holotype: Coll. Mus. Congo, Elisabethville (A la lumiere) — II — 1955, Ch. Seydel; Holotypus [pink label]; *Hemiophthalmocoris frontalis* sp. n., G. Schmitz det. 1968; paratype: the same data as holotype. (MRAC); paratype: Sudan, Kordofan, Lake

Keilak, 8—11. 2. 63, Linnavuori; *Hemiophthalmocoris frontalis* sp. n., G. Schmitz det. 1968, (LC).

Diagnosis: This species is slightly similar to *H. convexus* but it can be distinguished by a very short first antennal segment (Fig. 33).

Description: Female (male unknown). Body brown, broad, covered with dense, pale setae, length of the body 3.90 mm, width 1.45 mm. Head brown, covered with pale, long setae, vertex convex, length of head 0.52 mm, width 0.75 mm, diameter of eye 0.15 mm. Antennae brown, covered with very dense, short, pale setae, length of antennal segments in mm: 0.31: 0.78: 0.49 (fourth segment broken in the examined specimens). Rostrum brown, reaching at least abdomen, not well visible in the examined specimens.

Pronotal collar very thin, pronotum, scutellum and mesoscutum brown, anterior lobe of pronotum with a short, distinct, longitudinal sulcus, posterior margin of pronotum concave, length of pronotum 0.48 mm, anterior margin 0.65 mm, lateral margins 0.60 mm, posterior margin 1.25 mm.

Hemelytra brown, membrane pale, venation brown, distinct, major cell elongated, triangular, with a very small stub.

Underside of the body pale, legs pale brown to pale, tarsi relatively short, metatibiae and metatarsi with a row of long, thick, upright setae.

Distribution: Congo (Kinshasa), Sudan.

Hemiophthalmocoris longirostris Schmitz

Hemiophthalmocoris longirostris Schmitz, 1970: 509
Hemiophthalmocoris longirostris: Linnavuori, 1975: 6; Schuh, 1995: 30

Type material examined

Holotype: a la lampe; Congo Belge, P. N. G., Miss H. De Saeger, II/gd/4, 24-x-1951, Rec. H. De Saeger. 2656; *Hemiophthalmocoris longirostris* sp. n. [handwritten], G. Schmitz det. 1968; holotypus [pink label], (MRAC); paratype: Odzala, Congo, X 1963; Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963-1964; paratypus; *Hemiophthalmocoris longirostris* sp. n. [handwritten], G. Schmitz det. 1969; (MNHN); paratype: Sudan. Equatoria, Mundri, 24. II. 63, Linnavuori; paratypus [pink label]; *Hemiophthalmocoris longirostris* sp. n. [handwritten], G. Schmitz det. 1969; paratype: Coll. Mus. Congo, Bas-Congo: Kimwenza, I/IV — 1956, R. P. Van Eyen; 6711—302; *Hemiophthalmocoris longirostris* sp. n. [handwritten], G. Schmitz det. 1969, (MRAC).

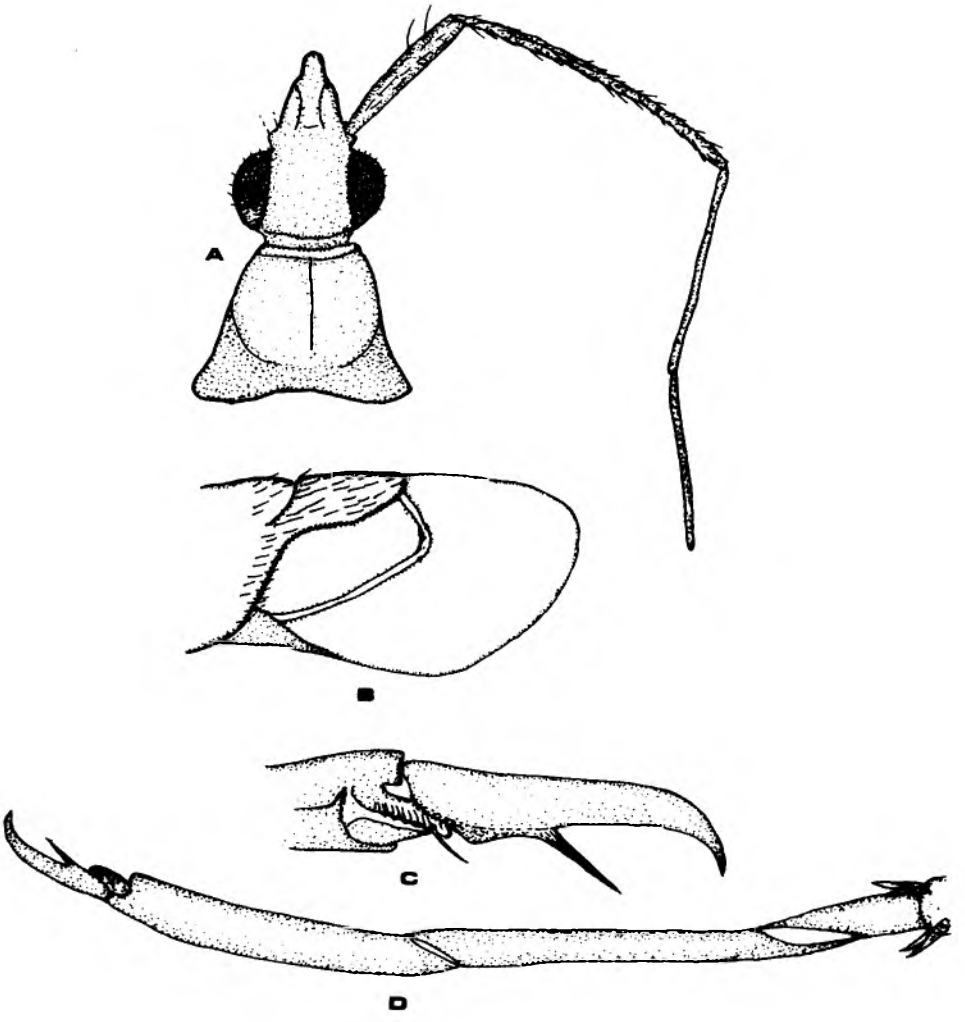
Other material examined

Female: Coll. Mus. Tervuren, Ife-Ife, 5 I 1970, M-32, Nigeria, T.T. Medler [handwritten]; *Hemiophthalmocoris longirostris* Schmitz [handwritten], G. Schmitz det. 1973; female: Tachiman, Ghana, 8. XII. 65; (JGC); two females: Centr. Afr. Rep., Bossangoa Bossembele, 2 VI. 73, Linnavuori; female: Centr. Afr. Rep., La Maboke,

8—9 VI 73, Linnavuori; female: Nigeria B. Pl. St. Makurdi, 30 VIII 73, Linnavuori; female: Nigeria W. St., Igboho-Kishi, 9 VII 73, Linnavuori; female: Ivory Coast, Foro Foro, 25—26 IX 73, Linnavuori; female: Ivory Coast, Man 14—21. X. 73, Linnavuori. One specimen in JGC, the rest in MRAC.

Diagnosis: See diagnosis of *H. lugubris.*

Redescription: Female (male unknown). Body elongated, pale brown, covered with dense, long, pale setae, length of the body 4.3—4.65 mm, width 1.43—1.48 mm. Head pale brown, vertex and frons distinctly convex, eyes



Figs 34A—D. *Hemiophthalmocoris longirostris* Schmitz, A — head and pronotum in top view, B — distal part of hemelytra, C — claw, D — metatarsi (by Guy Schmitz)

small, length of head 0.57—0.63 mm, width 0.62—0.72 mm, diameter of eye 0.12—0.15 mm. Antennae slightly removed from the margins of eye (Fig. 34A), pale to pale brown, covered with setae, length of antennal segments in mm: 0.60: 1.17—1.30: 0.91 (fourth segment broken in the examined specimens). Rostrum thin, long, reaching beyond abdomen, first segment longer than head from sides.

Pronotal collar distinct, pronotum pale to pale brown, pronotum, mesoscutum and scutellum covered with long, pale setae. Length of pronotum 0.55 mm, anterior margin 0.57 mm, lateral margins 0.57 mm, posterior margin 1.17 mm.

Hemelytra pale brown to brown, translucent except embolium and cuneus, covered with dense, pale setae, membrane pale, minor cell invisible, major cell rounded (Fig. 34B).

Underside of the body pale, coxae pale, femora, tibiae and tarsi pale to pale brown.

Distribution: Central African Republic, Congo (Brazzaville), Congo (Kinshasa), Ivory Coast, Nigeria, Sudan: Equatoria.

Hemiophthalmocoris lugubris Poppius

Hemiophthalmocoris lugubris Poppius, 1912: 175
Hemiophthalmocoris lugubris: Bergroth, 1920: 77; Carvalho, 1952b: 48, 1957: 20; Schmitz, 1970: 507; Linnavuori, 1975: 6; Carvalho, 1981a: 3; Schuh, 1995: 30

Type material examined

Holotype: Zool. Mus. Berlin, 1 *Capsid* [handwritten], F. Brit. O. Afr. (Kibwezi) 1. III. 08 [handwritten], 7 N. 12, S. G. Scheffler [handwritten], J.N. 1130/08, E.K.N. [old label]; Mus Zool. Helsinki, Loan No 84, HE 639 [yellow label]. (ZMHU).

Other material examined

Female: Odzala, Congo, X 1963; Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963—1964; *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det. 1969; (MNHN); female: Coll. Mus. Tervuren, Cote d'Ivoire: Bouake, (a la lumiere), IX/X, 1962, *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det. 1967; female: Coll. Mus. Tervuren, Cote d'Ivoire: Bingreville, I. 1964, J. Decelle; 6711—281; *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det. 1967; female: Ile-Ife, Nigeria, 5 Aug. 1964, Col. J. T. Medler; *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det. 1972; female: neotypus [pink label]; Musee du Congo, Faradie: Angodra, 19. II. 1930, (A. Collart); female: Rustenburg, Transvaal, Union of South Africa, XII — 9 — 1950, A. L. Capener; J. A. Slater Collection; *Hemiophthalmocoris lugubris* Popp., det. J. A. Slater, 1956; holotypus; *Hemiophthalmocoris transvaalensis* sp. n., G. Schmitz det. 1969. All in MRAC; female: 1 female; Transvaal, Pretoria; *Hemiophthalmocoris lugubris* Popp., det. J.C.M. Carvalho 19; female: West Africa, Nigeria, Samaru, Dr. S. Endrody-Younga;

Nr 403, light trap, 20. X. 1969. Both in HNHM. Female: Gold Coast, Tafo, 24 Sept. 1943, H. E. Box; (JGC). One female: Sudan, Equatoria, Loka forest, 8—10, IV 63, Linnavuori; female: Nigeria, Zaria, Samaru, 16 xii, 1979, J. C. Deeming; *Hemiophthalmocoris lugubris* Poppius, det. J. C. Deeming; female: Nigeria; N. W. State, Mokwa, I. A. R. Mile 1. 8—17 viii, 1970, P. H. Ward, B. M. 1970—604; *Hemiophthalmocoris lugubris* Popp., det. Akingbohungbe; In BMNH. Three females: Centr. Afr. Rep., La Maboke, 6—9. VI. 73, Linnavuori; female: Ivory Coast, Man, 14—21. X. 73, Linnavuori; female: Dahomey, Parakou, 5—6. IX. 73, Linnavuori. One specimen in JGC the rest in MRAC; two females: Sudan, Equatoria. Lotti, forest, 14—17. III. 63, Linnavuori; *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det.; three females: Ile-Ife, Nigeria, 5 Aug. 1969, Col. J. T. Medler; *Hemiophthalmocoris lugubris* Poppius, G. Schmitz det.; female: Ibba-Yambio, 16. IV. 63, Linnavuori; female: Sudan, Equatoria, Mundri, 24. II. 63., Linnavuori. All in LC.

Diagnosis: This species is very similar to *Hemiophthalmocoris longirostris* Schmitz but differs from it in triangular major cell of membrane, slightly shorter frons, wider eyes and less convex vertex.

Redescription: Female (male unknown). Body elongated, pale brown to brown, length of the body 4.40—4.80 mm, width 1.43—1.56 mm. Head brown, covered with dense, erect and semi-erect, pale setae, length of head 0.60—0.70 mm, width 0.68—0.78 mm, diameter of eye 0.17 mm. Antennae slightly removed from the margin of eye, first and second antennal segments covered with short, protruding setae, third and fourth segments thin but relatively long. Length of antennal segments in mm: 0.52—0.57: 1.22—1.25: 0.80—0.88: 0.96—1.0. Rostrum very long, reaching almost the end of abdomen, first segment pale, longer than head in lateral view, third and fourth segments very thin, brown.

Pronotal collar distinct, brown, pronotum, mesoscutum and scutellum brown to dark brown, covered with dense, long, pale, semi-erect setae. Length of pronotum 0.60 mm, anterior margin 0.65 mm, lateral margins 0.65 mm, posterior margin 1.30 mm, posterior margin slightly concave.

Hemelytra brown, covered with dense, pale setae, slightly translucent, embolium darker, widened towards the apex, cuneus as thin as embolium in the distal part. Membrane pale to pale grey, venation pale to pale brown, major cell triangular with a very small stub.

Underside of the body pale to pale brown, coxae pale, femora, tibiae and tarsi unicoloured, pale to pale brown.

Distribution: Benin, Central African Republic, Congo (Brazzaville), Congo (Kinshasa), Ghana, Ivory Coast, Kenya: Kibwezi, Nigeria, South Africa: Transvaal, Sudan: Equatoria.

Remarks. Schmitz (1970) designated the neotype for this species erroneously assuming that the type was lost. However, among the unidentified specimens of Cylapinae in Helsinki I found the type (holotype by monotypy)

of *Hemiophthalmocoris lugubris* Poppius, and — according to the new International Code of Zoological Nomenclature (Fourth Edition) — I treated the neotype just as a representative of the species.

Hemiophthalmocoris micropterus sp. nov.

Type material

Holotype: Congo Belge: P. N. A., 6—VI—1955, P. Vanschuytbroeck, 13. 445—48; Secteur Tshiaberimu, Riv. Kasinga, 2.580 m, affl. Talya Nord, ex P.N.A.; holotypus [pink label]; *Hemiophthalmocoris micropterus* sp. n. [handwritten], G. Schmitz det. 1969. (MRAC).

Diagnosis: Among the other representatives of the genus it can be distinguished by small size, very short elytra, long head, and relatively narrow pronotum with the posterior margin distinctly shorter than second antennal segment.

Description: Male (female unknown). Body small, elongated (Fig. 29), brown, covered with pale setae, length of the body 3.0 mm (?) (abdomen dissected in the examined specimen), width 0.90 mm. Head long, longer than wide, covered with dense, long, white, erect and semi-erect setae. Eyes very small, circular, not reaching gula below (Fig. 7). Length of head 0.57 mm, width 0.49 mm, diameter of eye 0.08 mm. Antennae brown, second segment almost as thick as third (third broken in the middle). Length of antennal segments in mm: 0.54: 0.91. Rostrum long, brown, the first segment paler.

Pronotum brown, narrow, pronotal collar distinct, relatively broad, brown, anterior lobe of pronotum slightly raised, with a very long, thin, longitudinal sulcus. Length of pronotum 0.48 mm, anterior margin 0.44 mm, lateral margins 0.49 mm, posterior margin 0.72 mm. Mesoscutum invisible, scutellum brown.

Forewings very short, brown, length of elytra 1.0 mm, width 0.48 mm.

Underside of the body brown, legs brown, tibiae and tarsi paler. The genital capsule was prepared before my study and parameres were deformed.

Distribution: Congo (Kinshasa).

Remarks. The holotype of this species had been examined before my study and seriously damaged, so it was impossible to measure the specimen precisely.

Hemiophthalmocoris minor sp. nov.

Type material

Holotype: Ivory Coast, Man, 1—21. X. 73, Linnavuori, (LC); paratype: Ivory Coast, Goumere, 19. IX. 73, Linnavuori (JGC).

Diagnosis: This species is very similar to *H. parvulus* but can be easily distinguished by the short second antennal segment, shorter than the width of head.

Description: Female (male unknown). Body small, elongately oval, pale brown, covered with pale setae, length of the body 2.10—2.26 mm, width 0.93 mm. Head dark brown, short, covered with dense, pale setae, vertex distinctly convex, length of head 0.28 mm, width 0.52 mm, diameter of eye 0.10 mm. Antennae contiguous with the margins of eyes, pale, covered with dense, short setae. Length of antennal segments in mm: 0.21: 0.39: 0.41: 0.18 (?). Rostrum pale brown, not well visible in the examined specimens.

Pronotal collar relatively broad, brown, pronotum brown, slightly rugose, broad and short, mesoscutum and scutellum dark brown, covered with long, dense, pale setae. Length of pronotum 0.30 mm, anterior margin 0.48 mm, lateral margins 0.41 mm, posterior margin 0.88 mm.

Hemelytra brown, paler than pronotum, covered with dense, pale, fitting setae, corium slightly translucent, embolium and cuneus a little darker, membrane pale to grey, venation brown, major cell rounded, minor cell indistinct.

Underside of the body pale brown, legs unicoloured, pale brown.

Distribution: Ivory Coast.

Hemiophthalmocoris parvulus sp. nov.

Type material

Holotype: Sudan, Equatoria, Mundri, 24. II. 63, Linnavuori; paratypus [pink label]; *Hemiophthalmocoris parvulus* sp. n. [handwritten], G. Schmitz det. 1968; paratype: the same data as holotype. (MRAC). Paratype (female): paratype [circular label with yellow margin]; Sudan, Equatoria, Jbba Yambio, 16 IV 63, Linnavuori; *Hemiophthalmocoris parvulus* Schmitz [handwritten]; (BMNH); paratype: Sudan, Equatoria, Lalyo-Juba, 26—27. II. 63 Linnavuori; paratypus [pink label]; *Hemiophthalmocoris parvulus* sp. n. G. Schmitz det.; paratypes: same data as holotype. One paratype in JGC, the rest in LC; paratype: Sudan, Equatoria, Terakeka, 2—6. III. 63, Linnavuori; paratypus [pink label]; *Hemiophthalmocoris parvulus* sp. n. G. Schmitz det. [handwritten]; paratype: Sudan: Equatoria, Lalyo-Juba, 26—27. II. 63, Linnavuori. In LC.

Diagnosis: See above.

Description: Female (male unknown). Body pale brown, covered with dense, pale setae, length of the body 2.35 mm, width 1.0 mm. Head brown, covered with dense, pale, semi-erect setae, antennae pale, covered with pale setae, contiguous with the margins of eyes, second antennal segment distinctly shorter than the posterior margin of pronotum. Length of antennal segments in mm: 0.26: 0.54 (third and fourth segments broken in the examined specimens). Rostrum not well visible in the examined specimens.

Pronotum broad, short, brown, slightly rugosae, covered with long, pale, fitting setae, anterior lobe only slightly marked with a small depression in the middle, posterior margin straight. Length of pronotum 0.32 mm, anterior margin 0.47 mm, lateral margins 0.31 mm, posterior margin 0.91 mm. Mesoscutum and scutellum brown to pale brown, mesoscutum narrow, scutellum flat.

Hemelytra pale brown, covered with dense, pale setae, corium slightly translucent, embolium and cuneus darker, cuneus relatively short, membrane pale to grey, venation brown, major cell rounded, minor cell indistinct.

Underside of the body pale to pale brown, legs unicoloured, pale, covered with dense, pale setae.

Distribution: Sudan: Equatoria.

Microfulvius Poppius

Type species: *Microfulvius brevicollis* Poppius, 1912 (original designation)

Microfulvius Poppius, 1912: 168

Microfulvius: Bergroth: 1920: 75; Carvalho, 1952b: 48, 1955a: 19, 1957: 20; Schuh, 1995: 31

Diagnosis: According to Poppius' original description, this genus is similar to *Peritropis* Uhler but differs from it in the elongated body and relatively short hemelytra.

Redescription: "Body stout, matt, slightly curved on sides, hemelytra very short, covered with setae. Head somewhat curved, in top view a little longer than wide (with eyes), from sides longer than high, prominent and slightly pointed frontally. Frons slightly rugose, elongated in the middle. Eyes rounded, large, projecting, with small ommatidia, reaching gula and contiguous with the margin of pronotum. Clypeus moderately marked, gula of medium length, forming an acute angle. Rostrum very long, reaching the end of abdomen, first rostral segment longer than head. Antennae relatively short, thin, tubercles almost contiguous with the margins of eye, first antennal segment very short, not reaching beyond head, with numerous protruding setae at the apex, second segment as thick as the first but longer, not covered with setae, slightly shorter than posterior margin of pronotum, third and fourth segments thin, covered with short setae, together slightly longer than the second segment, last segment longer than the third.

Pronotum much wider than long, frontally tapering almost linearly, posterior margin not distinct, humeral angles rounded, anterior angles obtuse and rounded, lateral margins sharp, anterior margin somewhat obscure

in the mid part. Pronotum smooth, calli large, the middle part elongated backwards. Anterior lobe of pronotum flattened at both sides, partly covered with calli. Scutellum flat, a little longer than wide.

Hemelytra reaching slightly beyond abdomen, embolium narrow, cuneus a little longer than wide. Propleuron not divided. Legs mutilated.

This genus is related to *Fulvius* Stäl, but differs from it in the structure of rostrum, antennae and pronotum with very thin pronotal collar partly covered by calli. Typus: *M. brevicollis* n. sp.".

Remarks. Despite my efforts I could not trace the holotype or any representatives of this species. The redescription of the genus and species is given according to a translation of Poppius' paper (POPPIUS, 1912).

Microfulvius brevicollis Poppius

Microfulvius brevicollis Poppius, 1912: 169
Microfulvius brevicollis: Bergroth 1920: 75; Carvalho 1957: 20; Schuh 1995: 31

Diagnosis: See the genus.

Redescription: "Reddish-yellow, eyes chestnut, pronotum narrow at base, the apex of scutellum and two last antennal segments brownish-yellow, clavus and corium yellowish-white, cuneus brown, membrane dull yellow.

Second antennal segment almost 3 times as long as the first, last antennal segment almost twice as long as the third. In a female vertex wider than the diameter of eye. The posterior margin of pronotum less than 3 times as long as pronotum in the mid point and less than twice as wide as the anterior margin. Length of body 2.30 mm, width 0.90 mm. Dar-es-Saalam: Pongani!, R. Regner, 1 female (Mus. Berol.)".

Distribution: Tanzania: Dar es Saalam.

Peritropella Carvalho

Type species: *Peritropella malgache* Carvalho, 1981b (original designation)
Peritropella Carvalho, 1981b: 462
Peritropella: Carvalho & Froeschner, 1987: 133; Schuh, 1995: 32

Diagnosis: In general appearance this genus is similar to the genus *Peritropis* Uhler but differs from it in the shape of pronotum (Fig. 35), first antennal segment very thin at base, and second segment short, only slightly longer than the double length of the first. *Peritropella* has also rugose pronotum and scutellum, and punctate lines along medial fracture and claval suture (inside clavus), which very rarely occurs in the genus *Peritropis*.

Redescription: Body elongate oval, covered with dense, short, adpressed setae, head short, triangular, covered with dense, very short setae, vertex with a distinct longitudinal sulcus, eyes contiguous with pronotal collar, antennae on tubercles contiguous with or slightly removed from the margins of eyes. Rostrum partly invisible in the examined specimens but, according to Carvalho's description, reaching metacoxae in females.

Pronotal collar thin, pronotum strongly rugose, calli raised, separated, humeral angles only slightly raised, posterior margin of pronotum almost straight, with only a small incision in the middle. Mesoscutum well exposed, scutellum with a longitudinal hump in the middle, mesoscutum and scutellum rugose, covered with short, dense setae.

Hemelytra smooth, a row of deep punctures runs inside clavus, parallel to claval suture and almost reaching the apex of clavus, another vein of punctures runs along medial fracture, reaching slightly beyond the claval apex. Costal fracture present, membrane two-celled, major cell triangular.

Tarsi very short, two-segmented, with a distinct, subapical tooth.

Peritropella malgache Carvalho

Peritropella malgache Carvalho, 1981b: 463
Peritropella malgache: Carvalho & Froeschner, 1987: 192; Schuh, 1995: 33

Type material examined

Holotype: Ambodivoangy [handwritten]; J. Vandon [handwritten] Institut Scientifique, Madagascar; holotypus [red label]; *Peritropella malgache* n. sp. [handwritten], J. C. M. Carvalho det. 19. Housed in USNM.

Diagnosis: This species can be distinguished from the one discussed below by smaller size, thicker second antennal segment, dimensions and colour pattern.

Redescription: Female (male unknown). Body brown, head, pronotum and scutellum dark brown, length of the body 2.75 mm, width 1.30 mm. Length of head 0.44 mm, width 0.60 mm, diameter of eye 0.20 mm. First antennal segment dark brown, second segment pale, length of antennal segments in mm: 0.31: 0.73 (remaining segments broken in the examined specimen). Rostrum pale brown, unmeasurable in the examined specimen.

Pronotum dark brown, only posterior margin and external margins of humeral angles pale, pronotal collar brown. Length of pronotum 0.46 mm, anterior margin 0.50 mm, lateral margins 0.50 mm, posterior margin 1.10 mm. Mesoscutum and scutellum dark brown, covered with dense, pale setae, there is a short, longitudinal, paler stripe in the apical part of scutellum.

Hemelytra pale brown, rows of punctures along claval suture and medial fracture dark, embolium and cuneus pale, slightly tinged with red, membrane pale brown, venation pale, distinct.

Underside of the body chestnut, coxae pale, remaining parts of legs broken in the examined specimen.

Distribution: Madagascar.

Peritropella vadoni sp. nov.

Type material

Holotype: Coll. Mus. Tervuren, Madagascar: Fanpanambo, 1962, J. Vadon; Allotypus; *Peritropis* (*Corigramma*) *vadoni*. Subg. n. sp. n [handwritten], G. Schmitz det. 1968; paratype: Coll. Mus. Tervuren, Madagascar: Fanpanambo, 1962, J. Vadon; paratypus; *Peritropis* (*Corigramma*) *vadoni*. Subg. n. sp. n [handwritten], G. Schmitz det. 1968. (MRAC).

Diagnosis: See above.

Description: Female (male unknown). Body pale brown to brown, length of the body 3.58—3.84 mm, width 1.56—1.69 mm. Head unicoloured, dark brown or with paler vertex, clypeus and mandibular plate, length of head 0.62 mm, width 0.65—0.70 mm, diameter of eye 0.17—0.18 mm. Antennal segments sparingly covered with very short setae, first segment pale at base then pale brown to dark brown, pale at apex, second segment pale brown, slightly tinged with red, thin, slightly thickened apically. Length of antennal segments in mm: 0.39—0.41: 0.93—0.96 (third and fourth segments broken in the examined specimens). Rostrum except the first segment invisible in the available specimens, first segment as long as head in lateral view, pale brown, second segment pale brown at base.

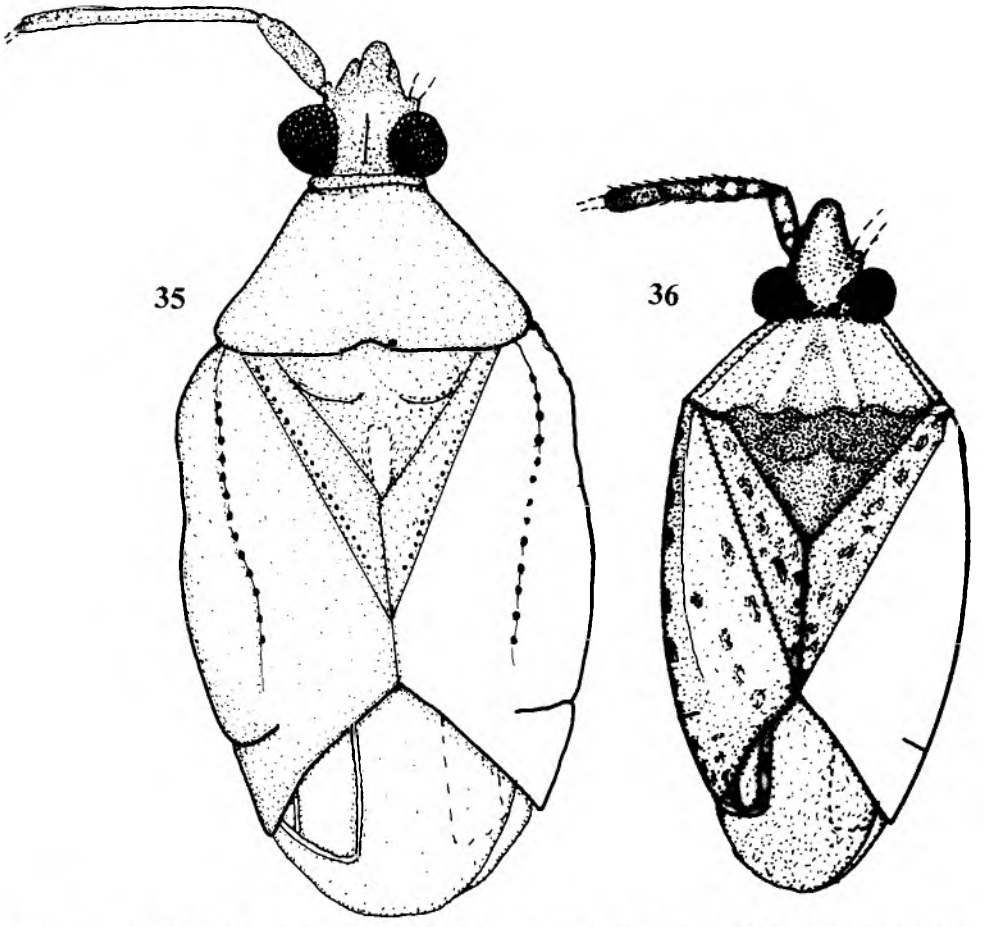
Pronotum and pronotal collar dark brown, paratype paler at the callar area, with pale patches on posterior lobe and pale along posterior and lateral margins. Length of pronotum 0.57—0.59, length of anterior margin 0.52—0.54, lateral margins 0.70—0.72, posterior margin 1.35—1.43 mm. Mesoscutum and scutellum dark brown, scutellum with a slightly paler (paratype) or pale (holotype) longitudinal sulcus in the middle (Fig. 35).

Hemelytra pale brown to dark brown, covered with dense, short, silvery setae, with slightly darker patches, tinged with red on embolium and cuneus, cuneus almost as long as wide, pale brown to reddish brown.

Underside of the body pale brown to brown, femora brown with brown or reddish rings and patches, tibiae and tarsi pale or pale brown.

Distribution: Madagascar.

Remarks. The holotype is darker, shorter but wider than the paratype.



Figs 35—36. Dorsal habitus, 35 — *Peritropella vandoni* sp. nov., holotype; 36 — *Peritropis botswanica* sp. nov., holotype

Peritropis Uhler

Type species: *Peritropis saldaeformis* Uhler, 1891 (monotypy)

Peritropis Uhler, 1891: 121

Peritropis: Kirkaldy, 1906a: 145; Reuter, 1909: 66; Poppius, 1909: 19, 24; Distant, 1910: 253; Reuter, 1910: 154, 1912: 42; Poppius, 1912: 165, 169; Van Duzee, 1916: 42, 1917: 366; Bergroth, 1920: 74; McAtee & Malloch, 1924: 71; Bergroth, 1925: 159; Blatchley, 1926: 880; Knight, 1941: 62; Carvalho, 1946: 4; Froeschner, 1949: 137; Carvalho, 1952b: 48, 1955a: 18, 1957: 21; Kelton, 1959: 50; Schmitz, 1970: 504; Linnavuori, 1975: 5; Medler, 1980: 96; Kerzhner, 1988: 790; Henry & Wheeler, 1988: 271; Schuh, 1995: 33; Gorczyca, 1997c: 185, 1998c: 13, 1998e: 199; Gorczyca & Eyles, 1997: 226; Kerzhner & Josifov, 1999: 9

Mevius Distant

Type species: *Mevius lewisi* Distant, 1904 (original designation)
Mevius Distant, 1904
Mevius: Kirkaldy, 1906a: 156; Carvalho, 1957: 21; Schuh, 1995: 33

Diagnosis: Among the other representatives of the tribe the genus *Peritropis* can be distinguished by stout, usually oval body, short and broad pronotum, pronotal collar very thin or invisible, eyes contiguous with the anterior margin of pronotum, antenniferous tubercles contiguous or only slightly removed from the margins of eyes, the margins of hemelytra usually distinctly convex, hemelytra smooth, pronotum smooth, in some species rugose, mesoscutum exposed, tarsi very short, two-segmented, second segment usually divided, claws usually with a distinct subapical tooth.

Redescription: Body oval or elongate oval, head triangular, shorter than wide, eyes large, usually contiguous with the anterior margin of pronotum, antenniferous tubercles contiguous or only slightly removed from the margins of eyes. First and second antennal segments the thickest, in some species distiflagellum divided. Rostrum straight, thin, reaching at least beyond metacoxae.

Pronotal collar very thin or absent, pronotum broad and short, posterior margin much longer than the length of pronotum, lateral margins usually elevated, calli usually confluent, more or less raised. Pronotum usually smooth but in a few species it can be rugose, mesoscutum well exposed, usually with distinct carina on sides.

Hemelytra well developed, brachypterous forms unknown, hemelytra usually distinctly wider than the posterior margin of pronotum, embolium distinct, costal fracture present, cuneus usually broad, membrane two- or single-celled.

Legs relatively short, tarsi short, two-segmented, second segment often divided, claws usually with a distinct subapical tooth.

Parameres usually with one arm, but at least two species, one known from the Loyalty Islands (GORCZYCA, 1998c) and *P. granulosa* sp. n. have V-shaped left paramere (Fig. 37 I). Aedeagus membranous, often with sclerotized spiculi.

Distribution: Known mostly from the tropical and subtropical regions but occurs also in North America, New Zealand and Maritime Territory in Eastern Russia.

Remarks. The name of the genus has been coined from the Greek words — *peri* (very) and *tropis* (keel), the latter is feminine (Kerzhner pers. com.) hence the gender of the genus is also feminine. This is why I have emended the spelling of some species names.

KEY TO THE AFRICAN SPECIES OF *PERITROPIS*

1. Frons, clypeus and humeral angles of pronotum at least partly white, first and second antennal segments pale ..... *linnavuorii* sp. nov.
— Frons, clypeus and humeral angles of pronotum differently coloured 2
2. Second antennal segment very long, longer than the width of the body ..... *selene* Linnavuori
— Second antennal segment shorter 3
3. Membrane unicoloured, without pale spots or patches 4
— Membrane with pale spots or patches 12
4. Body oval, second antennal segment flattened ..... *crassicornis* Poppius
— Body more or less elongated, second antennal segment not flattened 5
5. Body covered with long, dense, semi-erect and erect setae, much longer than the diameter of second antennal segment, pronotum and head with numerous, pale swellings ..... *macrotricha* sp. nov.
— Body covered with short setae, shorter or equal to the diameter of second antennal segment 6
6. Pronotum unicoloured or only with a few paler patches 7
— Pronotum mottled with pale and brown patches 10
7. Hemelytra widest at base, distinctly narrowed towards the end ..... *rugulosa* sp. nov.
— Hemelytra not narrowed towards the end 8
8. Corium and clavus almost unicoloured, brown ..... *minuta* sp. nov.
— Corium and clavus brown and pale, at least partly translucent 9
9. Pronotum chestnut, diameter of eye distinctly longer than vertex ..... *schmitzi* sp. nov.
— Pronotum almost black, diameter of eye shorter than vertex ..... *schaeferi* sp. nov.
10. First and second antennal segments pale, second segment thin, covered with dense, pale, protruding setae ..... *pierrardi* sp. nov.
— Antennal segments brown, covered with very short setae 11
11. Femora dark brown, only the extreme apex pale, second antennal segment distinctly shorter than the posterior margin of pronotum, scutellum dark brown covered with very small, pale marks ..... *granulosa* sp. nov.
— Femora paler with a broad pale ring in the apical part, second antennal segment slightly shorter than the posterior margin of pronotum, scutellum mottled with pale patches ..... *nilotica* sp. nov.

12. Membrane with regular pale spots 13
— Membrane with different colour pattern 19
13. Antennae and tibiae with contrasting pale and dark rings ..... *armillaria* Schmitz
— Antennae and tibiae without contrasting rings 14
14. Small species, length of body 3.5 mm or less 15
— Length of body 4 mm or more 16
15. Antennae unicoloured, brown or chestnut ..... *obscurella* Gorczyca
— Antennae with a pale ring in the basal part and a pale ring in the middle ..... *maculisparsa* sp. nov.
16. Second antennal segment thick, in the apical part as thick or thicker than foretibiae at base 17
— Second antennal segment thin, thinner than foretibiae 18
17. Second antennal segment almost cylindrical, covered with very dense, pale setae, left paramere without tubercles in the middle ..... *rynskii* sp. nov.
— Second antennal segment thickened towards the apex, not covered with such dense setae, left paramere with a small tubercle in the middle ..... *africana* Poppius
18. Corium brown, covered with small, blurred, pale spots, clavus brown with pale spots, brown at apex ..... *magna* sp. nov.
— Corium covered with bright yellow spots and large patches, clavus with bright pale spots and patches, pale at apex ..... *malawiana* sp. nov.
19. Length of body less than 3.5 mm 20
— Length of body more than 4 mm 23
20. Second antennal segment pale, metatibiae pale with only two or three dark rings or patches ..... *kerzhneri* sp. nov.
— Second antennal segment dark with paler patches, metatibiae dark with numerous pale spots and patches 21
21. First antennal segment pale with small brown spots, second segment dark brown with pale contrasting spots ..... *maculicornis* Linnavuori & Al-Safadi
— First antennal segment pale with red or brown patches 22
22. First antennal segment pale at base, red or brown at apex, second antennal segment thin, the anterior lobe of pronotum pale, tinged with brown ..... *stysi* sp. nov.
— First antennal segment pale with reddish patches, second segment thicker, the anterior lobe of pronotum tinged with orange ..... *botswanica* sp. nov.
23. Body pale, clavus white with pink patches, first antennal segment less than twice as short as second, pronotum without a projecting tooth ..... *tanzanica* Gorczyca

— Body brownish, first antennal segment much shorter than second, pronotum with a projecting tooth 24
24. Clypeus sharply ended ..... *rostrata* sp. nov.
— Clypeus rounded ..... *smreczynskii* Gorczyca

Peritropis africana Poppius

Peritropis africanus Poppius, 1912: 170
Peritropis africana: Bergroth, 1920: 74; Carvalho, 1957: 21; Carvalho, Dutra & Becker, 1960: 446; Schuh, 1995: 33; Gorczyca, 1997d: 165, 1998e: 199; Gorczyca & Eyles, 1997: 229
Peritropis (s.str.) *africanus*: Linnavuori, 1975: 5
Peritropis africanus: Medler, 1980: 96; Linnavuori & Al-Safadi, 1993: 181

Type material examined

Holotype: *Peritropis africanus* n. sp. [handwritten], B. Poppius det.; Holotypus [pink label]; Zoolog. Museum Berlin, Fundort: Brit. O. Africa, No. 18, Kibwezi [handwritten], Sammler. G. Scheffer I U. [handwritten], gef. am XI. 07, Jr. No 420\08; Typus [red label], R. Linnavuori det.; Mus. Zool. H: fors, Spec. typ. No 12348, *Peritropis africana* [handwritten]; (ZMHU).

Other material examined

Male: Coll. Mus. Congo, Ellsabethville (A la lumiere), V-1949, Ch. Seydel; *Peritropis africanus* Poppius [handwritten], G. Schmitz det. 1968; male: Kanzenza, Juin 1924, Ch. Saydel; Musee du Congo, Katanga: Kanzenze, —VI—1924 [handwritten], Ch. Seydel; *Peritropis africanus* Poppius [handwritten], G. Schmitz det. 1968. All in MRAC; two males: Lubumbasi, 15—19. 7. 71 and 21—29. 7. 71 [handwritten]; JGC; male: Sudan, Equatoria, Copoeta-Boma, 26—27. III. 63, Linnavuori; *Peritropis africanus* Poppius G. Schmitz det. (LC).

Diagnosis: This species can be distinguished by elongated head, coloration of the body and the shape of parameres (Figs 37A—B).

Redescription: Male (female unknown). Body pale brown to pale red or dark brown, covered with small, paler dots and patches, and pale, fine setae, length of the body 4—4.8 mm, width 1.65—1.95 mm. Head brown or reddish, eyes rounded in top view, elongated from side, slightly removed from the anterior margin of pronotum. Length of head 0.65—0.70 mm, width 0.78—0.85 mm, diameter of eye 0.18—0.23 mm. Antennae slightly removed from the margins of eyes, first antennal segment thick, pale at base then brown to dark brown, sometimes slightly tinged with orange or red, covered with dense, pale setae. Second segment thick, slightly thickened apically, pale to pale brown, towards the apex darkened and tinged with red or orange, covered with dense, pale setae. Third and fourth segments thin,

short and pale, covered with pale setae. Length of antennal segments in mm: 0.44—0.54: 1.3—1.56: 0.44 (fourth segment partly broken in all examined specimens). Rostrum long, almost reaching pygophor, first segment brown or reddish, second pale, third and fourth segments pale to pale brown, rostral segments unmeasurable in the examined specimens.

Pronotum pale brown to brown, mottled with pale spots and pale and dark patches, lateral margins and humeral angles elevated, posterior margin with a small incision. Calli raised, not confluent, paler, posterior lobe of pronotum with two longitudinal, rib-like humps connecting posterior margin and calli. Length of pronotum 0.44—0.57 mm, anterior margin 0.54 mm, lateral margins 0.65 mm, posterior margin 1.17—1.40. Mesoscutum broad, raised, pale brown with a darker pattern, scutellum flat, brown with darker and paler patches, the apex of scutellum pale.

Hemelytra pale brown to brown, tinged with red, covered with paler and darker dots and patches, covered with fine setae. Clavus pale to brown, with small, paler spots and rib-like anal vein, embolium narrow, slightly widened towards the apex, pale with pale brown or chestnut patches, paler and tinged with red and orange in the apical part. Cuneus the darkest, pale brown to dark brown, pale at apex, corium with a dark brown patch above cuneus, contiguous with membrane. Membrane pale to dark grey, with indistinct, paler spots more conspicuous on dark grey membrane, venation pale to grey, major cell triangular.

Underside of the body pale to dark brown, with paler and red areas. Forecoxae brown, meso- and metacoxae pale, femora pale, brown in the middle and in the apical part, often tinged with red or orange. Tibiae pale at base then brown, sometimes small red patches are visible in the apical and basal parts, tarsi pale. Parameres large, curved.

Distribution: Congo (Kinshasa): Katanga, Kenya: Kibwezi, Sudan, West Namibia.

Peritropis armillaria Schmitz

Peritropis armillarius Schmitz, 1970: 505

Peritropis armillarius: Linnavuori & Al-Safadi, 1993: 180; Linnavuori, 1994: 151, 152; Schuh, 1995: 33; Gorczyca, 1997d: 165, 1998e: 199, 200; Gorczyca & Eyles, 1997: 229

Type material examined

Holotype (male): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, XII, 1961, J. Decelle; holotypus [pink label]; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1968; paratype (female): paratypus [pink label]; Musee du Congo, Likimi, IX. 1922 [handwritten], A. Collart; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz

det. 1968; paratype (male): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, IX, 1962, J. Decelle; paratypus [pink label]; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1968; paratype (female): Musee du Congo, Mulongo (Niunzu) 20—30 — V — 1930, Dr P. Gerard; paratypus [pink label]; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1968; paratype (male): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, IX, 1962, J. Decelle; paratypus [pink label]; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1968; paratype (female): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, VIII, 1963, J. Decelle; 584—41; paratypus [pink label]; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1968; (MRAC); paratype (female): Dimonika (Maiumbe); Museum Paris, Mission, A. Descarpentries et A. Villiers, 1963—1964; paratypus; *Peritropis armillarius* sp. n. [handwritten], G. Schmitz det. 1969; (MNHN).

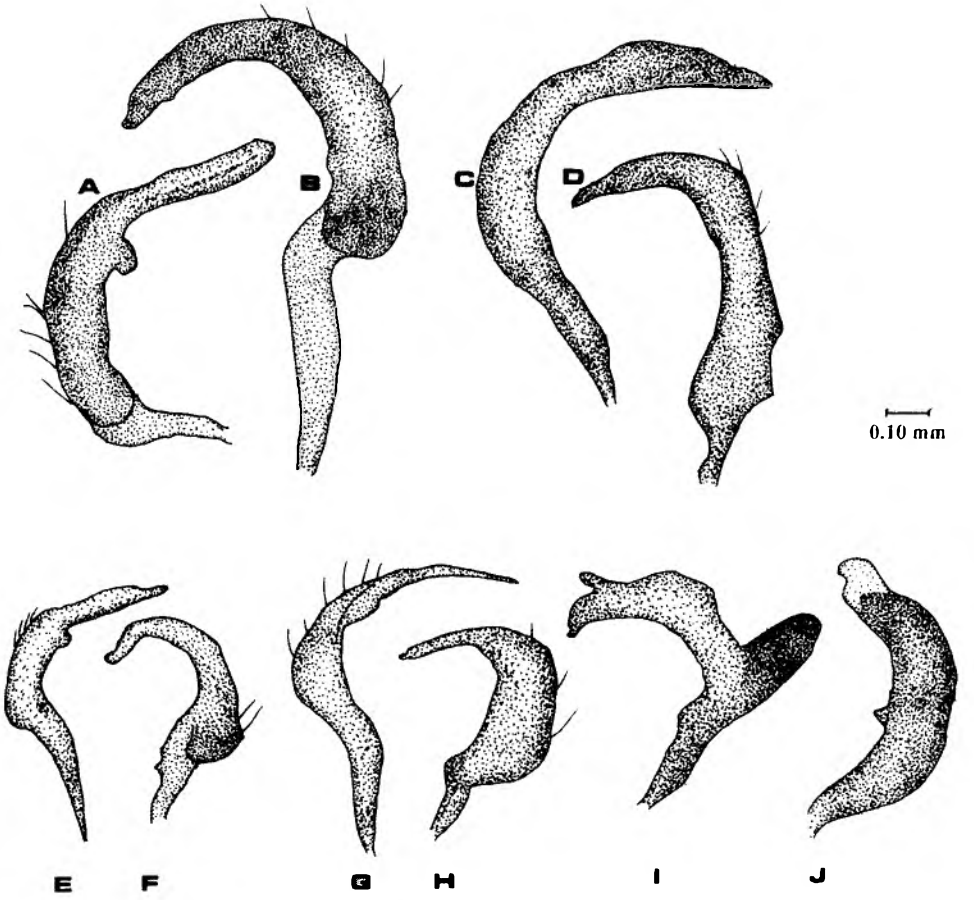
Other material examined

Ten males: UV Trap; 5—28 XI. 65, Tafo, Ghana, Leston; five males and two females: 8—30. I. 65; UV Trap; Tafo, Ghana; two males: 11 and 30 XII. 65.; UV Trap; Tafo, Ghana; male: UV Trap; Tafo, Ghana, 25 VIII. 65; male: UV Trap; Tafo, Ghana, 18. X. 65, Leston; male: UV Trap; 6 VII. 65, Tafo, Ghana; two males: U.V. trap; Tafo, Ghana, 7 and 27 VII. 67. D. Leston; male: UV Trap; Tafo, Ghana, 7. X. 65; female: UV Trap; Tafo, Ghana, 3 II. 66; male: Sierra Leone, Newton, 19. IX. 69E. Hargreaves; male: Ivory Coast, Man, 14—21. X. 73, Linnavuori; female: Gold Coast, Tafo, 2 Feb. 1943, H. E. Box. male: Ivory Coast. Noro Foro, 25—28. IX 73, Linnavuori. Five specimens in JGC the rest in MRAC. Three male: UV Trap; Tafo, Ghana, 8—9. XI. 65. Leston; D. Leston coll., BM. 1976—509; male: UV Trap; Tafo, Ghana, 21. XI. 65, Leston; male: u. v. trap; Tafo, Ghana, 17. VIII. 66; female: u. v. trap; Tafo, Ghana, 28: IV: 66, Leston; D. Leston coll., BM. 1976—509; female: UV Trap; Tafo, Ghana, 25: II: 66, Leston; D. Leston coll., BM. 1976—509. One male and female in JGC, the rest in BMNH; male: Ile-Ife, Nigeria, 5 Aug. 1969, Col. J. T. Medler; *Peritropis armillarius* det. G. Schmitz (LC).

Diagnosis: Among the other representatives of the genus it can be distinguished by the colour pattern of antennae and tibiae.

Redescription: Male. Coloration very variable, body brown to reddish, mottled with pale patches, covered with short, shining setae, length of the body 2.70—2.80 mm, width 1.17—1.24 mm. Head mottled with pale, brown and red patches, vertex with a sulcus, sometimes weakly marked, antennae almost contiguous with the margins of eyes. Length of head 0.41—0.44 mm, width 0.62—0.65 mm, diameter of eye 0.20 mm. First antennal segment pale at base then red to dark brown, with one or two pale patches, the extreme apex pale, second segment red to dark brown, pale at apex, sometimes pale also at base, with two or three pale, contrasting rings, covered sparingly with very short setae. Third and fourth segments brown, covered with pale, protruding setae. Length of antennal segments in mm: 0.25—0.26: 0.80—0.85: 0.26: 0.36. Rostrum long, reaching pygophore.

Pronotal collar invisible, pronotum brown, chestnut or reddish, mottled with numerous paler spots and patches, lateral margins and humeral angles elevated, anterior lobe of pronotum raised, with a longitudinal sulcus in the middle, posterior margin almost straight. Length of pronotum 0.39—0.41 mm, anterior margin 0.57—0.59 mm, lateral margins 0.44 mm, posterior margin 1.10—1.17 mm. Mesoscutum and scutellum usually very dark, to a lesser or greater degree covered with small, pale dots, the apex of scutellum pale but in some specimens scutellum pale in the apical part and dark at apex, sometimes with a short, dark, to a lesser or greater degree marked longitudinal stripe.



Figs 37A—J. Parameres: A—B — *Peritropis africana* Poppius, C—D — P. *rynskii* sp. nov., E—F — *P. nilotica* sp. nov., G—H — *P. armillaria* Schmitz, I—J — *P. granulosa* sp. nov.

Hemelytra brown to translucent, covered with paler spots and patches, embolium darker, often tinged with red, corium with a brown patch above

cuneus, cuneus brown to red, with small, pale dots, pale at apex and at base. Membrane pale to dark grey covered with paler, regular spots, which are more conspicuous on darker membrane, venation thin, not very distinct, major cell triangular.

Underside of the body brown to dark brown, with paler and red areas, femora brown, pale at base and apex, often tinged with red in the apical part, tibiae pale with contrasting, broad, brown or red rings. Tarsi relatively long, pale, two-segmented, claws thin, with a distinct subapical tooth, parameres thin, curved (Figs 37G—H).

Female similar to male but bigger, length of the body 3.25—3.30 mm, width 1.40—1.50 mm. Length of head 0.46—0.49 mm, width 0.65—0.67 mm, diameter of eye 0.14—0.15 mm, length of antennal segments in mm: 0.26: 0.95—1.0: 0.31: 0.39.

Distribution: Cameroon, Congo (Kinshasa), Congo (Brazzaville), Ghana, Ivory Coast, Nigeria, Sierra Leone.

Remarks. Hemelytra of the holotype are translucent except embolium, clavus and corium slightly darkened in the apical part, a brown patch on corium, above cuneus well marked. One of the paratypes is almost entirely pale, the paratype from Mulongo (Niunzu), differs from the other types in red coloration and very thin second antennal segment.

Peritropis botswanica sp. nov.

Type material

Holotype: malaise traps, Botswana: Serowe, 22° 25′ S, 26° 44′ E; xi-xii 1985, P. Forschammer coll., B. M. 1986—68; BMNH.

Diagnosis: This species can be distinguished by smaller size, the orange anterior lobe of pronotum and coloration of antennal segments.

Description: Male (female unknown). Small insects, body pale brown, tinged with orange, length of the body 2.80 mm, width 1.20 mm. Head pale with red patches on vertex, clypeus pale, slightly tinged with orange, covered with small, brown spots. Length of head 0.44 mm, width 0.59 mm, diameter of eye 0.19 mm. First antennal segment thick, club-like, pale with red or brown patches, second segment brown with small pale patches, covered with dense, pale, short setae, third and fourth segments very short, brown, covered with long, pale, upright setae. Length of antennal segments in mm: 0.28: 0.91: 0.18: 0.18. Rostrum very long, reaching almost the end of abdomen, first segment brown, tinged with red, remaining segments pale brown.

Pronotum pale, mottled with numerous small, brown spots and patches, the anterior lobe raised and more or less orange, with small depressions in the middle. There is a raised A-shaped pattern in the middle of pronotum (Fig. 36).

Lateral margins and humeral angles slightly elevated. Length of pronotum 0.42 mm, anterior margin 0.47 mm, lateral margins 0.52 mm, posterior margin 1.10 mm. Mesoscutum brown, slightly paler on sides, tinged with red in the holotype, scutellum slightly raised and paler in the middle.

Hemelytra pale brown, partly translucent, mottled with numerous small dots, embolium slightly tinged with orange, with a longitudinal row of small, brown patches on its external part. There are also a few dark brown, elongated, small patches on corium and clavus, claval vein rib-like, partly paler. Cuneus brown, translucent in the middle, membrane with small, paler patches, venation thin, pale brown, with paler rings, major cell triangular.

Underside of the body chestnut, tinged with red, coxae white, tinged with red, remaining parts of the legs broken in the examined specimen. Genitalia not studied.

Distribution: Botswana.

Peritropis crassicornis Poppius

Peritropis crassicornis Poppius, 1912: 170
Peritropis crassicornis: Bergroth, 1920: 74; Carvalho, 1957: 21; Linnavuori & Al-Safadi, 1993: 181; Schuh, 1995: 33; Gorczyca, 1997d: 165, 1998e: 199; Gorczyca & Eyles, 1997: 229

Type material examined

Holotype: *Peritropis crassicornis* n. sp. [handwritten]; Lumierie — Fulleborn, ende VIII — 1899 — Langenburd — D.O. Afr. [handwritten, recent label, probably by Schmitz]; Langenburg, ende VIII. 99, Lichf., Fulleborn [handwritten, old label, in pencil]; Mus. Zool. H: fors, Spec. typ. No 11971, *Peritropis crassicornis* Popp. [handwritten]; Mus. Zool. Helsinki, N:o 18149; Holotypus [pink label]; Mus. Zool. Helsinki, Loan No. HE 92—184.

Diagnosis: This species can be distinguished from the other representatives of the genus by stout, almost oval body, flattened second antennal segment and embolium distinctly widened in the distal part.

Redescription: Female (male unknown). Body wide, stout, brownish, tinged with red, covered with dense, pale setae, length of the body 4.9 mm, width 2.3 mm. Head brown, vertex with a longitudinal sulcus in the middle. Eyes contiguous with the anterior margin of pronotum, length of head 0.80 mm, width 0.91 mm, diameter of eye 0.20 mm. Antenniferous tubercles slightly removed from the margins of eyes, first antennal segment thick, dark brown, covered with short setae, second segment distinctly flattened, chestnut at base then darkened towards the apex, almost black in the apical part, covered with short, pale setae, length of antennal segments in mm: 0.57:

1.43 (third and fourth segments broken in the examined specimen), width of second segment 0.20 mm. Rostrum thin, pale brown, reaching the mid of abdomen.

Pronotum pale brown, lateral margins and humeral angles elevated, anterior lobe of pronotum slightly raised, calli almost confluent, separated only by a thin, longitudinal sulcus. Length of pronotum 0.70 mm, anterior margin 0.90 mm, lateral margins 0.70 mm, posterior margin 1.69 mm. Mesoscutum and scutellum invisible in the holotype, covered with glue.

Hemelytra pale brown, with small, pale dots, clavus pale brown, tinged with red, covered with small, pale spots, corium pale with reddish patches and small paler dots, and with a large, dark brown patch contiguous with membrane. Embolium wide, brown, tinged with red and covered with small pale dots, pale above cuneus, cuneus broad, chestnut, with a few small, pale spots. Membrane grey, venation not well visible in the examined specimen.

Underside of the body brown to chestnut, all legs broken.

Distribution: Tanzania.

Remarks. This species is known only from the holotype which is in bad condition: hemelytra, pronotum and scutellum are covered with glue, the genital segment had been dissected before my analysis. All legs are broken and there are only two antennal segments glued separately.

Peritropis granulosa sp. nov.

Type material

Holotype (male): Ghana: Tafo, 6 Oct. 1967 JA & S Slater, Toby Schuh; collected at ultraviolet light; Schuh [handwritten]; holotypus [pink label]; *Peritropis granulosus* sp. n. G. Schmitz det. 1968; (MRAC); paratype (male): Ile- Ife, Nigeria, 5 Aug. 1970, Col. J. T. Medler; Lh-271; paratype (male): *Peritropis granulosus* sp. n. G. Schmitz det (LC); paratype (female): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, VIII. 1962, J. Decelle; holotypus [pink label]; *Peritropis granulosus* sp. n. G. Schmitz det. 1968; paratype (female): UV Trap; Tafo, Ghana, 27. VIII. 65; three paratypes (males): UV Trap; Tafo, Ghana, 10. I. 66; two paratypes (males): UV Trap; Tafo, Ghana, 14, 15 I. 66; paratype (male): UV Trap; Tafo, Ghana, 11. I. 66; paratype (male): UV Trap; Tafo, Ghana, 8: IX: 67; paratype (male): UV Trap; Tafo, Ghana, 20. I. 66; paratype (male): u. v. trap; Tafo, Ghana, 21. I. 67; paratype (male): u. v. trap; Tafo, Ghana, 29. X. 67, D. Leston; D. Leston coll., B.M. 1976—509. Two paratypes in JGC, the rest in MRAC. Paratype (male): u.v trap; Tafo, Ghana, 24. 3. 67; Leston; D. Leston coll. B. M. 1976—509; paratype (male): UV Trap; tafo, Ghana, 16. XI. 65, Leston. Both in BMNH.

Diagnosis: This species is similar to *Peritropis obscurella* Gorczyca but differs from it in the coloration of first and second antennal segments and the shape of parameres.

Description: Male. Body oval, stout, brown to dark brown, covered with very short, shining, scale-like setae, length of the body 3.10—3.25 mm, width 1.20—1.35 mm. Head mottled with brown and pale patches, frons elongated, vertex slightly depressed in the middle, eyes large, elongated, in side view occupying almost the whole part of head before the antennal tubercles, antennae contiguous with the margins of eyes, length of head 0.44—0.48 mm, width 0.66—0.70 mm, diameter of eye 0.21—0.23 mm. First antennal segment pale at base then dark brown, sometimes with a few very small, pale patches, second segment dark brown, usually with a small, pale patch in the middle, sometimes with a few smaller patches on the ventral side, covered with very short, pale, closely fitting setae, third and fourth segments very short, dark brown. Length of antennal segments in mm: 0.23—0.26: 0.82—0.85: 0.20: 0.18. Rostrum long, reaching beyond the mid of abdomen.

Pronotum dark brown, mottled with pale patches, calli almost fused, raised, posterior margin pale, posterior lobe of pronotum with 3—5 pale, longitudinal stripes which connect it with anterior lobe. Lateral margins raised, length of pronotum 0.46—0.52 mm, anterior margin 0.55—0.59 mm, lateral margins 0.54—0.56 mm, posterior margin 1.0—1.1 mm. Mesoscutum and scutellum convex, unicoloured, dark brown, covered with very small pale marks, apex of scutellum pale.

Hemelytra dark brown, with numerous small spots and patches, cuneus dark brown, with a small, pale patch above, contiguous with membrane. Membrane grey to dark grey, venation well marked, major cell triangular.

Underside of the body dark brown, abdomen reddish to dark brown, coxae pale, femora dark brown, pale at base and the extreme apex, tibiae dark brown, with paler, longitudinal stripes or rings more or less marked, tarsi brown. Left paramere V-shaped, right paramere curved (Figs 37I—J).

Female more oval, second antennal segment longer and thinner than in males, covered with numerous small, pale patches, eyes smaller. Mesoscutum and scutellum brown covered with small paler patches. Femora dark brown, only metafemora pale at apex, tibiae dark brown with an obscure, paler patch, slightly paler at apex, tarsi brown. Length of the body 3.25 mm, width 1.63 mm, length of head 0.49 mm, width 0.72 mm, diameter of eyes 0.18 mm, length of antennal segments in mm: 0.26: 1.0 (third and fourth segments broken in the examined specimens). Length of pronotum 0.52 mm, anterior margin 0.65 mm, lateral margins 0.65 mm, posterior margin 1.37 mm.

Distribution: Ghana, Ivory Coast, Nigeria.

Peritropis kerzhneri sp. nov.

Type material

Holotype (male): UV Trap; Tafo, Ghana, 1. XI. 65; paratype (male): UV Trap; Tafo, Ghana, 14. X. 65; paratype (male): UV Trap; Tafo, Ghana, 21. XI. 65; paratypes

(two females): UV Trap; Tafo, Ghana, 14—15 I. 66; paratype (female): UV Trap; Tafo, Ghana, 18. III. 66; paratype (female): u. V. trap; Tafo, Ghana19: VII: 66. One male paratype in JGC, the rest in MRAC; paratype (male): UV Trap; Tafo, Ghana, 15: I: 66, Leston. In BMNH.

Etymology: This species is named in honour of Professor Izya Kerzhner, with warm thanks for his help in my studies on Miridae.

Diagnosis: It can be distinguished by coloration of the body and the colour pattern of membrane.

Description: Male. Body elongately oval, yellow to pale brown, covered with short, shining setae, length of the body 3.0—3.10 mm, width 1.30—1.35 mm. Head pale to yellow, with small, pale brown to brown or red patches, with distinct occipital carina, vertex with a slightly marked, longitudinal sulcus, eyes covered with very short, protruding setae, length of head 0.46—0.52 mm, width 0.64 mm, diameter of eye 0.16 mm. Antennae contiguous with the margins of eyes, first segment pale at base, with red and brown patches in the apical part, sparingly covered with short, pale setae, second segment thin, almost cylindrical, covered with dense, short setae, dark at base then pale brown, sometimes tinged with red and occasionally with a paler ring in the middle, third and fourth segments dark, covered with long, pale, semi-erect setae, fourth segment slightly flattened and thickened in the apical part. Length of antennal segments in mm: 0.26—0.29: 0.91—0.96: 0.34: 0.39. Rostrum very long, reaching pygophor.

Pronotum pale, mottled with small brown patches more numerous on sides and on posterior lobe, anterior lobe pale, raised, with a longitudinal sulcus in the middle, lateral margins of pronotum elevated. Length of pronotum 0.41—0.44 mm, anterior margin 0.59—0.62 mm, lateral margins 0.41—0.46 mm, posterior margin 1.0 mm. Mesoscutum and scutellum pale brown, mottled with pale dots and patches.

Hemelytra pale brown to yellow, with numerous obscure, pale patches, embolium and cuneus yellow, with chestnut and brown patches, more intensely coloured, distinctly separated from the dully coloured corium. Cuneus with pale and translucent patches at base, corium with a dark brown patch contiguous with membrane, membrane pale brown or grey with numerous pale patches.

Underside of the body pale, femora pale brown, with two red rings or patches in the apical part, tibiae pale or pale brown with two or three dark patches, tarsi short, pale brown. Parameres and aedeagus not examined.

Female similar to male but slightly bigger, embolium and cuneus not as contrasting in colour, rostrum shorter than in males, reaching beyond metacoxae, mesoscutum and scutellum sometimes unicoloured, yellow. Body length 3.17—3.45 mm, width 1.43—1.53 mm, length of head 0.46 mm,

width 0.59 mm, diameter of eye 0.13 mm. Length of pronotum 0.44 mm, anterior margin 0.60 mm, lateral margins 0.50 mm, posterior margin 1.17 mm.

Distribution: Ghana.

Peritropis linnavuorii sp. nov.

Type material

Holotype: Erithrea, Ailet, 30—31. V. 63, Linnavuori; Holotype [pink label]. In LC.

Etymology: This species is named in honour of Dr. Rauno Linnavuori, Finland.

Diagnosis: This species can be distinguished from all other representatives of the genus by white frons, white sides of pronotum and translucent, pale and brown hemelytra.

Description: Male (female unknown). Body small, pale, covered with fine, short, pale setae, length of the body 2.86 mm, width 1.14 mm. Head pale, only vertex with a brown and reddish pattern, frons white with small patches at base and a small, dark, longitudinal stripe above clypeus. Clypeus and mandibular plate white, maxillary plate and buccula red, buccula white at apex. Length of head 0.52 mm, width 0.70 mm, diameter of eye 0.23 mm. Antennae inserted on small tubercles, slightly removed from the margin of eye, first segment pale, white at apex, second segment cylindrical, relatively thick, pale, covered with dense, pale, short setae. Length of antennal segments in mm: 0.31: 1.30 (third and fourth segments broken in the examined specimen).

Pronotum brown in the middle, humeral angles slightly elevated, white, the posterior margin with an incision. Length of pronotum 0.42 mm, anterior margin 0.57 mm, lateral margins 0.59 mm, posterior margin 1.0 mm. Mesoscutum very broad, scutellum short, mesoscutum and scutellum unicoloured, brown.

Hemelytra translucent, clavus pale brown at apex and base, white in the middle, corium slightly brown at base then white, with a broad, transverse, pale brown stripe in the middle, embolium narrow, cuneus unicoloured, dark brown, pale at apex. Membrane pale, transparent, venation pale, major cell triangular.

Underside of the body white with red areas, coxae and femora white, femora reddish brown in the apical part, the apex pale, tibiae and tarsi unicoloured, pale. The pygophore was prepared before my study, parameres were deformed under microscope slides.

Distribution: Eritrea.

Peritropis macrotricha sp. nov.

Type material

Holotype (male): UV Trap; Tafo, Ghana, 18. XI. 65; paratypes (3 males): UV Trap; Tafo, Ghana, 2—5, VIII 65; paratypes (4 males): UV Trap; Tafo, Ghana, 10—31, I. 66; paratypes (5 males): UV Trap; Tafo, Ghana, 2—27, X. 65; paratype (male): UV Trap; Tafo, Ghana, 14. XII. 65, paratype (male): U. V. trap; Tafo, Ghana, 9. IX. 66; paratype (male?): Nigeria W. St. Ife, 14. VIII. 73; paratype (male): u.v. trap; Tafo, Ghana, 10: 8: 67, Leston; D. Leston coll., BM. 1976—509; paratype male: UV Trap; Tafo, Ghana 8. I. 66, Leston; D. Leston coll., BM. 1976—509; paratype (male): UV Trap; Tafo, Ghana, 24. XI. 65, Leston; D. Leston coll., BM. 1976—509; paratype (male): UV Trap; Tafo, Ghana, I. IX. 65, Leston; D. Leston coll., BM. 1976—509; paratype (male): uv trap [handwritten]; Tafo, Ghana, 20. VII. 66, Leston; D. Leston coll., BM. 1976—509; paratype (male): UV Trap; Tafo, Ghana, 5. I. 66, Leston; D. Leston coll., BM. 1976—509; paratype (male): UV Trap; Tafo, Ghana, 15. XII. 65, Leston; D. Leston coll., BM. 1976—509; paratype (female): Yangambi, 1952, C. Donis, A. 354; Coll. R. Mayne, Com. et. Bois Congo, R. 2442; Coll. Mus. Congo, Don R. Mayne; holotypus [pink label]; *Peritropis* (*Stigmogramma*) *macrotrichus* subgen. n. n. sp. n. [handwritten], G. Schmitz det. 1968. Five paratypes in JGC, five paratypes in BMNH, the holotype and the remaining paratypes in MRAC.

Diagnosis: Among the other representatives of *Peritropis* it can be distinguished by body covered with long, pale, protruding setae, and eyes with long, protruding setae which are much longer than the diameter of ommatidium.

Description: Male. Body elongated, oval, brown with paler and darker areas, covered with pale, long, erect setae, length of the body 2.47—2.73 mm, width 1.10—1.12 mm. Head short, brown, with small, pale swellings, length of head 0.44 mm, width 0.65 mm, diameter of eye 0.20 mm. Antennae inserted on small and flat tubercles, contiguous with the margins of eyes, eyes large, vertex with a deep sulcus in the middle, frons very short, depressed. First antennal segment very thin at base, pale, with small red patches, second segment pale, tinged with red or darkened at apex and at base, or unicoloured, brown, only slightly thickened apically, covered with short, dense setae; third and fourth segments thin, short, fourth segment divided in the middle. Length of antennal segments in mm: 0.23—0.25: 0.62—0.67: 0.33: 0.36. Rostrum reaching beyond metacoxae.

Pronotal collar invisible, pronotum brown, with pale swellings, anterior lobe of pronotum, distinctly separated by a deep furrow, raised with a deep, longitudinal sulcus in the middle, lateral margins elevated. Length of pronotum 0.39—0.41 mm, anterior margin 0.52 mm, lateral margins 0.54 mm, posterior margin 0.98—1.0 mm. Mesoscutum and scutellum unicoloured,

brown, mesoscutum paler on carina, separated from scutellum by a distinct, transverse furrow, apex of scutellum pale.

Hemelytra brown, claval suture distinct, deep, clavus slightly convex, embolium brown, with small, paler patches, sometimes tinged with red. Corium brown with broad, translucent, longitudinal bands, translucent above cuneus, cuneus unicoloured, brown, membrane grey, venation brown, distinct, major cell triangular.

Underside of the body dark brown and reddish, coxae pale, femora covered with long setae, pale at base and at apex, with a broad, brown to dark brown or red ring in the apical part, the apex pale with a small red ring or patch. Tibiae pale brown, tinged with red at base, sometimes with pale red patches, tarsi brown, the last segment divided, claws with a distinct subapical tooth.

Female similar to male.

Distribution: Congo (Kinshasa), Ghana, Nigeria.

Peritropis maculicornis Linnavuori & Al-Safadi

Peritropis maculicornis Linnavuori & Al-Safadi, 1993: 179
Peritropis maculicornis: Linnavuori, 1994: 151, 152; Schuh, 1995: 33; Gorczyca, 1997d: 165, 1998e: 199, 200; Gorczyca & Eyles, 1997: 229; Kerzhner & Josifov, 1999: 9

Type material examined

Holotype (male): Yemen, Abyan Al Mahfid, 18. IV 1992, R. Linnavuori; holotypus [red label]; *Peritropis maculicornis* Lv. [handwritten]; R. E. Linnavuori coll. NMW. Z, 1999. 004, (NMWC); paratype: Yemen, Ta'izz, Al Khawkhah, 4. V. 1992, R. Linnavuori; *Peritropis maculicornis* [handwritten]. In LC.

Other material examined

Male: Jemen, Al Kowd, 26—28. 8. 99, Van Harten (JGC); Oman, Muscat, Bandar al Jissah, m. v. light, 29 x. 1990, M. D. Galagher & J. C. Deeming; J. C. Deeming Coll. NMW. Z. 1981—001 (NMWC).

Diagnosis: This species is similar to *P. stysi* and to *P. selene* but it can be distinguished by the colour pattern of the first and second antennal segments and the coloration of legs.

Redescription: Male (female unknown). Body small, pale, covered with small, dark marks and short, pale, fine setae, length of the body 2.90 mm, width 1.12 mm. Head pale with small, brown patches, and with a distinct occipital carina, vertex with a longitudinal sulcus in the middle. Length of head 0.47 mm, width 0.60 mm, diameter of eye 0.21 mm. First antennal segment pale at base then mottled with pale and chestnut patches, second segment

covered with very short, fine setae, brown at base then brown, with two broad, pale rings and a few small dots, the apical part brown with three small, pale patches. Third and fourth segments unicoloured, dark brown, fourth divided in the middle. Length of antennal segments in mm: 0.22: 0.80: 0.26: 0.27. Rostrum brown, reaching pygophor.

Pronotum pale, covered with very small, dark dots, there are two bigger, brown patches contiguous with anterior margin of pronotum, pronotal collar invisible, lateral and posterior margins dotted with small, darker patches, lateral margins distinctly elevated. The callar area raised, with a thin, longitudinal sulcus in the middle. Length of pronotum 0.42 mm, anterior margin 0.52 mm, lateral margins 0.42 mm, posterior margin 1.0 mm. Mesoscutum and scutellum pale brown, mottled with slightly paler dots, scutellum slightly paler in the apical part but the extreme apex slightly darkened.

Hemelytra pale, covered with numerous small marks, clavus, medial fracture and R + M with rib-like vein, embolium thin, with a row of brown patches contiguous with the external margin. Corium with two large, brown patches contiguous with membrane, cuneus darkened with brown and pale areas, pale at apex. Membrane pale grey with numerous small patches.

Underside of the body pale, with red areas, femora pale with chestnut patches along the edges and in the apical part, tibiae with chestnut and pale patches, tarsi pale brown.

Distribution: Yemen, Oman.

Remarks. In the specimen from Oman medial fracture, R + M and claval vein tinged with red (brown in the holotype), the distal part of embolium and the apex of cuneus orange, cuneus pale in the middle.

Peritropis maculisparsa sp. nov.

Type material

Holotype: Nigeria: Bida, State \ Sep. 1970, Col. J. T. Medler; Lh — 331; paratypus [pink label]; *Peritropis maculisparsus* sp. n., G. Schmitz det. 1973. (MRAC).

Diagnosis: This species is similar to *Peritropis granulosa* but differs from it in a slender body, two pale rings on second antennal segment, membrane covered with pale spots, and a smaller size.

Description: Male (female unknown). Body small, dark brown, mottled with numerous small, pale spots and patches, covered with short, shining setae, length of the body 2.86 mm, width 1.14 mm. Head dark brown with obscure, paler patches, eyes large, antennae inserted on tubercles contiguous with the margins of eyes. Length of head 0.34 mm, width 0.57 mm, diameter

of eye 0.20 mm. First antennal segment pale at base then brown, tinged with red at apex, second segment brown, covered with dense, short setae, with a pale ring near the base and a pale ring in the middle. Length of antennal segments in mm: 0.23: 0.65 (third and fourth segments broken in the examined specimen). Rostrum invisible in the examined specimen.

Pronotum dark brown, mottled with small, paler dots, with two bigger, pale patches contiguous with posterior margin, lateral margins and humeral angles elevated, callar area raised, with a small depression in the middle. Length of pronotum 0.39 mm, anterior margin 0.44 mm, lateral margins 0.44 mm, posterior margin 0.96 mm. Mesoscutum and scutellum brown with obscure, small, paler patches, apex of scutellum paler, slightly tinged with red.

Hemelytra brown, with numerous pale spots and patches, embolium darker, slightly tinged with red, cuneus brown with small, pale spots, pale at base and at apex. Corium with a dark brown, big patch above cuneus, contiguous with membrane, membrane grey, covered with pale spots, venation not well visible in the examined specimen.

Underside of the body brownish, legs brown, pale at base and apex, tinged with red, metafemora brown, pale at apex, with a dark brown ring in the apical part, metatibiae with broad, dark brown and pale rings, covered with rows of setae and short, thick spines, spines occur also on the first segment of metatarsi, second tarsal segment divided, claws with a distinct subapical tooth. Unfortunately abdomen was dissected before my study and parameres and aedeagus were deformed under microscopic slides.

Distribution: Nigeria.

Peritropis magna sp. nov.

Holotype: Morogoro, Tanzania, at light, XI. 16. 1965, Coll. H. Hurlbut; holotypus [pink label]; *Peritropis parafer* sp. n., G. Schmitz det. 1969. (MRAC).

Diagnosis: This species can be distinguished by its size, coloration, sulcate vertex and thin second antennal segment covered with two kinds of protruding setae.

Description: Female (male unknown). Body large, stout, brown, mottled with numerous pale spots and patches. Length of the body 5.3 mm, width 1.95 mm, head brown, dotted with paler patches. Vertex tinged with red, with a distinct, deep longitudinal sulcus in the middle, eyes relatively small, reddish, almost contiguous with the anterior margin of pronotum. Length of head 0.9 mm in top view, width 0.9 mm, diameter of eye 0.20 mm. Antennae inserted on tubercles removed from the margins of eyes. First antennal segment thin at base, then thickened, pale at base, then with a dark red

patch and further pale brown, sparingly covered with pale, protruding setae. Second segment relatively short, dark brown, slightly tinged with red, sparingly covered with two kinds of protruding setae: shorter than its diameter and distinctly longer. Third and fourth segments short, thin, covered with pale, long setae. Length of antennal segments in mm: 0.57: 1.35: 0.83 (third and fourth together). Rostrum reaching beyond metacoxae, first rostral segment reddish, pale at apex, as long as head from sides, second segment pale at base, the last segment brown. The rostral part not well visible in the examined specimen.

Pronotum brown, mottled with small, pale spots and patches. Lateral margins and humeral angles elevated, calli raised, separated by a longitudinal sulcus. Length of pronotum 0.80 mm, anterior margin 0.67 mm, lateral margins 0.83 mm, posterior margin 1.7 mm. Mesoscutum dark brown with small, paler patches, scutellum dark brown, mottled with small, pale patches, tinged with red, apex pale.

Hemelytra brown, mottled, embolium thin, pale brown with a row of paler patches, clavus brown, darker at base, with distinct, rib-like vein in the middle. Corium with numerous small dots, slightly tinged with red, cuneus brown, tinged with red, with small, pale spots in the inner part. Membrane grey with paler spots, major cell with a small stub.

Forecoxae dark brown, femora brown, paler at apex, tibiae and tarsi brown, tarsi two-segmented, second segment divided, claws with a distinct subapical tooth.

Distribution: Tanzania.

Peritropis malawiana sp. nov.

Type material

Holotype: Coll. Mus. Tervuren, Malawi: Chisasira (Chinthehe), 20 XI 1977, R. Jacque; (MRAC).

Diagnosis: Similar to *P. magna* but differs from it in a yellow pattern on hemelytra, yellow humeral angles of pronotum and the pale yellow apex of scutellum.

Description: Female (male unknown). Body stout, brown, covered with numerous yellow patches and spots, length of the body 5.2 mm, width 2.1 mm. Head yellow with a brown pattern, eyes contiguous with the anterior margin of pronotum. Vertex slightly tinged with red, with a distinct, longitudinal sulcus in the middle. Length of head 0.90 mm in top view, width 0.85 mm, diameter of eye 0.23 mm. Antennae removed from the margins of eyes. First antennal segment thin at base then thickened, pale in the basal third then with a dark red ring and then orange, covered sparingly with pale setae, second segment

thin, only slightly thickened at apex, chestnut with paler, longitudinal stripes, covered with pale, protruding setae. Third and fourth segments pale, short, covered with dense, long, protruding setae. Length of antennal segments in mm: 0.42: 1. 30: 0.78 (third and fourth together). Rostrum not visible in the examined specimen.

Pronotum yellow, with a dark brown pattern on anterior lobe and in the middle, some areas slightly reddish, lateral margins and humeral angles yellow, elevated. Length of pronotum 0.60 mm, anterior margin 0.57 mm, lateral margins 0.80 mm, posterior margin 1.56 mm. Mesoscutum and scutellum dark, with small, pale patches, the apex of scutellum pale yellow to yellow. Scutellum convex in side view.

Hemelytra brown with numerous yellow dots and patches, embolium very wide in the distal part, clavus with rib-like vein in the middle. Corium partly covered with a slight, reddish pattern. Cuneus broad, dark brown with small paler patches, pale at apex and at base. Membrane dark grey with translucent spots, venation indistinct.

Underside of the body dark brown with paler and red areas. Coxae pale, femora dark brown tinged with red, pale at apex, tibiae pale at base then brown, tarsi brown.

Distribution: Malawi.

Peritropis minuta sp. nov.

Type material

Holotype: Tanzania, Morogoro, leg. A. Jagunga- Mrs. S. Pocs; at light, 1—2. II. 1970. (HNHM).

Diagnosis: Among the representatives of the genus it can be distinguished by small size, short head, coloration of the body and almost parallel margins of hemelytra.

Description: Male (female unknown). Body dark brown, matt, covered with very short, pale setae, length of the body 3.10 mm, width 1.10 mm. Head dark brown with small pale patches and spots, vertex dark with a longitudinal sulcus, eyes contiguous with the anterior margin of pronotum, length of head 0.46 mm, width 0.62 mm, diameter of eye 0.19 mm. Antennae covered with dense, fine, pale setae, inserted on dark tubercles, pale at apex, slightly removed from the margins of eyes. First antennal segment pale at base then darker, brown with reddish patches, the apex pale, second segment pale brown with pale and red longitudinal stripes, reddish at apex, third segment thin, brown. Length of antennal segments in mm: 0.39: 1.0: 0.52 (fourth segment broken in the examined specimen). Rostrum dark brown, reaching beyond metacoxae, the last segment paler.

Pronotal collar not visible, pronotum dark brown with small pale spots along the lateral margins and in the humeral angles. The posterior lobe of pronotum raised, calli separated by a longitudinal sulcus, lateral margins and humeral angles slightly elevated. Length of pronotum 0.31 mm, anterior margin 0.44 mm, lateral margins 0.46 mm, posterior margin 0.96. Mesoscutum dark brown, slightly paler than scutellum, with two pale, small, longitudinal patches, and only slightly marked carina on sides, scutellum slightly convex, dark brown, with a small, paler V-shaped patch at apex.

Hemelytra dark brown, covered with short, pale setae, the margins of hemelytra almost parallel, clavus dark brown, slightly paler along rib-like anal vein, embolium thin, dark, with a longitudinal row of pale patches, pale and tinged with red above cuneus. Corium dark brown with a pale patch above cuneus, contiguous with membrane, cuneus dark brown, pale at apex. Membrane dark grey, venation dark, minor cell not visible.

Underside of the body dark brown, almost black, coxae brown, forecoxae dark brown, femora dark brown, pale and tinged with red at apex, tibiae pale at base then pale brown, tarsi two-segmented, with very thin claws and a small subapical tooth.

Distribution: Tanzania.

Peritropis nilotica sp. nov.

Type material

Holotype: Congo Belge, P. N. G., Miss. H. De Saeger, II\gd\4, 24—x—1951, Rec. H. De Saeger. 2656; a la lampe; holotypus [pink label], *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; (MRAC); paratypes: Sudan, Bahr el Ghazal r. Wau, 19 II. 63. Linnavuori; paratypus [pink label]; *Peritropis niloticus*, det. G. Schmitz. In BMNH. Paratype: Sudan, Equatoria, Lotti forest, 14—17. III 63, Linnavuori; paratypus; [pink label]; *Peritropis niloticus* sp. n. [handwritten], G. Schmitz det. 1968 (ZIN); eleven paratypes: Sudan, Equatoria, Juba-Nimule, 10—11. III. 63, Linnavuori; paratypus [pink label]; *Peritropis niloticus* sp. n., G. Schmitz det. 1968; paratype: Sudan, Equatoria, Maridi-Ibba, 16. IV. 63; paratypus [pink label]; *Peritropis niloticus* sp. n., G. Schmitz det. 1968; paratype: Sudan, Equatoria, Nimule, 11—13. III. 63, Linnavuori; paratypus [pink label]; *Peritropis niloticus* sp. n., G. Schmitz det. 1968. Four paratypes in JGC, nine in LC; paratype: paratypus [pink label], Coll. Mus. Congo, Terr. de Faradje, 1944, J. Lisfranc; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratype: paratypus [pink label]; Musee du Congo, Haut-Uele: Mauda, 19 — II — 1925, Dr H. Schouteden; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratype: Congo Belge, P. N. G., Miss. H. De Saeger, II\gd\4, 30-xi-1951, Rec. H. De Saeger. 2812; a la lumiere; paratypus [pink label], *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratype: Musee du Congo, Zanikuze, 5—II. 1932 [handwritten], J. Vrydagh; paratypus [pink label]; 683—291; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; three paratypes:

Sudan, Equatoria. Nimule, 11—13. III. 63, Linnavuori; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratypus [pink label]; paratype: Sudan, Equatoria, Juba-Nimule, 10—11. III. 63, Linnavuori; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratypus [pink label]; paratype: Lamp [handwritten]; Sudan, Equatoria. Lotti, forest, 14—17. III. 63, Linnavuori; 683281; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratypus [pink label]; paratype: Somalia, nr Hargeissa, 23—28. VI. 63, Linnavuori; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratypus [pink label]; paratype: Sudan, Bakr el Ghazal, nr. Wau, 19 II. 63., Linnavuori; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratypus [pink label]; paratype: Musee du Congo, Haut-Uele: Mauda, 27 — III — 1925, Dr H. Schouteden; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratype: Congo Belge, P. N. G., Miss H. De Saeger, PpK, 90\115, 3 — xii — 1951, Rec. H. De Saeger, 2860; paratypus. Two paratypes in JGC, the rest of the paratypes in MRAC; paratype: Sudan, Wau, 25—26. IV. 63, Linnavuori; paratypus [pink label]; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; paratype: Somalia, nr. Hargeissa, 23—28. VI. 63; paratypus [pink label]; *Peritropis niloticus* sp. n., [handwritten] G. Schmitz det. 1968; all in LC.

Diagnosis: This species is similar to *Peritropis obscurella* Gorczyca but differs from it in membrane without pale spots and the shape of parameres (Figs 37E—F).

Description: Male (female unknown). Body elongately oval, covered with short setae, coloration very variable, brownish, mottled with brown and pale spots and patches, sometimes reddish, length of the body 3.0—3.50 mm, width 1.37—1.53 mm. Head pale, mottled with numerous small, brown or red patches, vertex without sulcus, antennae almost contiguous with the margins of eyes. Length of head 0.47—0.54 mm, width 0.72—0.78 mm, diameter of eye 0.23—0.26 mm. First antennal segment pale in one-half, then brown or red, sometimes with pale patches, second segment unicoloured, brown to dark brown or reddish, sometimes with a longitudinal row of small, pale spots, covered with dense, short setae. Third and fourth segments thin, covered with dense, pale, protruding setae, fourth segment divided in the middle, thickened in the apical part. Length of antennal segments in mm: 0.26: 0.91—1.0: 0.35—0.39: 0.46—0.52. Rostrum reaching beyond metacoxae.

Pronotal collar invisible, pronotum short, brownish or reddish with numerous pale dots and two small, dark brown patches on the anterior margin, contiguous with vertex, lateral margins and humeral angles distinctly elevated, anterior lobe of pronotum slightly raised. Length of pronotum 0.34—0.38 mm, anterior margin 0.65—0.70 mm, lateral margins 0.39—0.44 mm, posterior margin 1.12—1.20 mm. Mesoscutum and scutellum brown with numerous pale patches, mesoscutum paler than scutellum, scutellum very dark on sides, paler in the middle, the apical part pale, sometimes with a thin, dark, longitudinal stripe, the extreme apex dark.

Hemelytra brown, with numerous small, paler dots, corium sometimes reddish or translucent, darker in the apical part, the external margin of embolium darker, sometimes tinged with red. Cuneus brown, pale at base and at apex, sometimes with pale, small spots at base, membrane pale to grey, venation thin, not very well marked, major cell triangular.

Underside of the body brown to red with paler patches, femora brown with a paler ring or patch in the apical part, pale and tinged with red at apex. Tibiae pale at base then brown to dark brown or reddish, then pale and again pale brown, often tinged with red, coloration of metatibiae less contrasting, tarsi two-segmented, second segment divided, claws with a small subapical tooth. Parameres relatively small, curved.

Distribution: Congo (Brazzaville), Congo (Kinshasa), Somalia, Sudan: Equatoria.

Peritropis obscurella Gorczyca

Peritropis obscurella Gorczyca, 1998e: 200

Type material examined

Holotype: Malawi, SE1334DC, Senga Bay, 20 km NE of Salima 7—8, iii. 1987, J & A Londt, Woodland on hill behind hotel; holotype [red label]; *Peritropis obscurella* sp. n. det. J. Gorczyca, 1997 paratype: same data as holotype. Housed in NMSA.

Diagnosis: The new species is superficially similar to *Peritropis nilotica* but differs from it in e.g. membrane with pale spots and the colour pattern of tibiae.

Redescription: Male (female unknown). Body elongated, oval, dark brown, mottled with small, pale spots and patches, length of the body 3.5 mm, width 1.35 mm.

Head dark brown with paler patches, tinged with red beyond eyes, covered with fine, pale setae. Vertex with a longitudinal sulcus in the middle, frons, clypeus, mandibular plate and maxillary plate brown with paler places, slightly tinged with red. The apex of clypeus pale, tinged with orange. Length of head 0.6 mm, width 0.7 mm, diameter of eye 0.23 mm. Eyes contiguous with the anterior margin of pronotum. Antennae removed from the margins of eyes. First antennal segment very thin at base, then thickened towards the apex, pale at base, then with a dark ring and again pale brown to orange, tinged with red, covered with short, pale setae and bearing two long, pale, protruding setae. Second antennal segment brown, covered with dense, short, pale, adpressed setae and bearing also a few long, pale, protruding setae. Third and fourth segments pale, covered with long, pale, protruding setae, longer than the diameter of the segments. Length of antennal segments (in mm): 0.4: 0.9: 0.36

(fourth segment broken in the examined specimens). Rostrum long, almost reaching pygophore, first segment dark brown, pale at apex, remaining segments pale brown.

Pronotal collar invisible, pronotum mottled with small pale spots and patches, covered with fine, pale setae. Lateral margins and humeral angles elevated, anterior lobe of pronotum with distinctly raised calli, posterior lobe with a rectangular depression in the middle, beyond callar area. Humeral angles pale, tinged with orange, posterior margin of pronotum with a broad incision. Length of pronotum 0.52 mm, lateral margins 0.65 mm, posterior margin 1.1 mm. Mesoscutum dark brown with small paler patches, scutellum very dark, almost black, with a group of small, paler patches in the middle, the apex of scutellum pale. Mesoscutum and scutellum covered with pale setae.

Hemelytra brown, covered with fine, shining setae, marked with small, pale dots and patches. The apex of clavus, embolium and cuneus pale, clavus with rib-like claval vein. The external part of cuneus dark brown, the inner part pale with small reddish patches. There is a dark brown patch above cuneus, contiguous with membrane. Membrane grey with a few small, translucent spots, venation indistinct, major cell with a small stub.

Underside of the body dark brown, legs covered with pale setae, forecoxae brown, paler at base, meso- and metacoxae pale with a brown patch at base, forefemora chestnut, paler at apex, meso- and metafemora pale at base then chestnut and pale again at apex with a brown or orange ring. Meso- and metafemora bearing a few long trichobothria in the apical part. Tibiae pale brown, slightly paler and tinged with red at base, covered with rows of short setae, metatibiae additionally with rows of short, thick spines. Tarsi pale brown, covered with long setae, second segment divided, claws with a small subapical tooth (GORCZYCA, 1998e, Fig. 1). Parameres thin, aedeagus with sclerotized spiculi (GORCZYCA, 1998e, Figs 2—4).

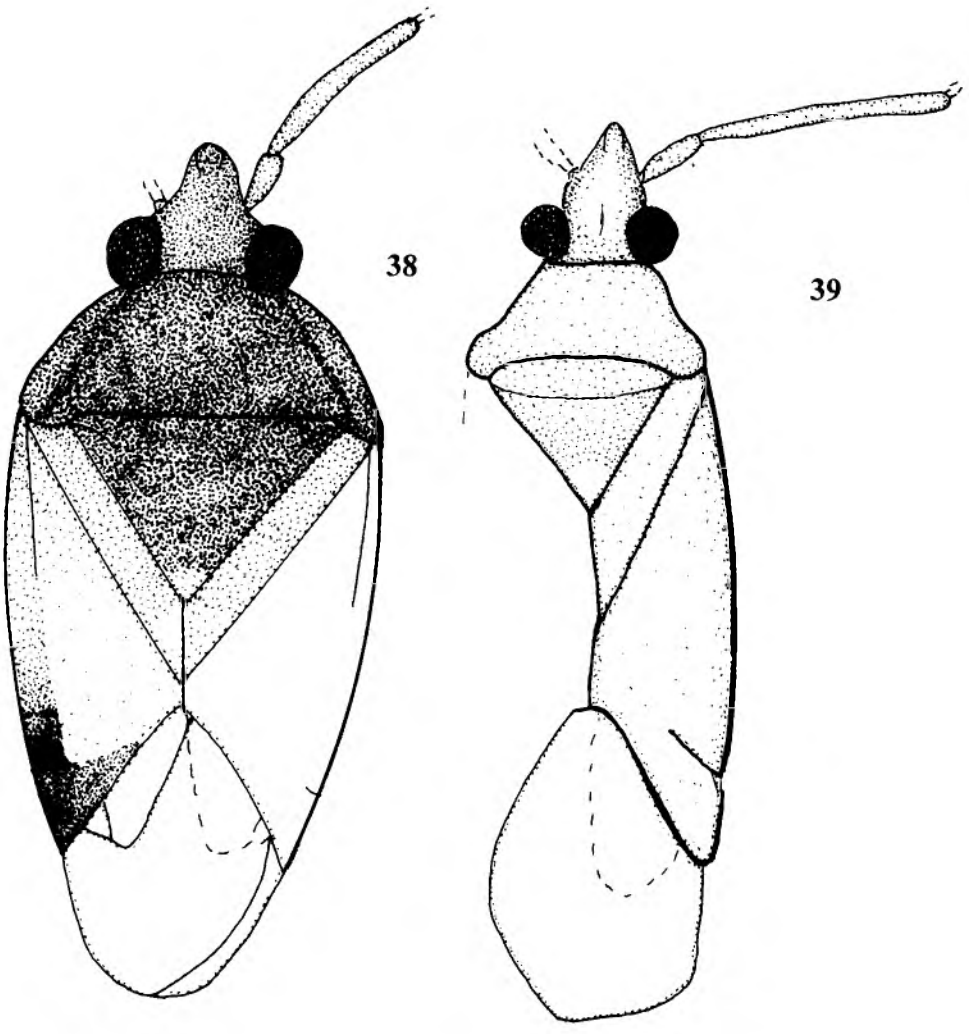
Distribution: Malawi.

Peritropis pierrardi sp. nov.

Type material

Holotype: Coll. Mus. Tervuren, Rep. Centrafricane, Bambari, U. V., G. Pierrard, II. 1964; holotypus [pink label]; *Peritropis pierrardi* sp. n., G. Schmitz det. 1969. (MRAC).

Diagnosis: This species can be distinguished by narrow pronotum (Fig. 39), long scutellum almost unicoloured, pale first and second antennal segments.



Figs 38—39. Dorsal habitus, 38 — *Peritropis rugulosa* sp. nov., holotype; 39 — *P. pierrardi* sp. nov., holotype

Description: Male (female unknown). Body elongated, dark brown, covered with short, fine, shining setae, length of the body 3.64 mm, width 1.3 mm (?) (part of hemelytron damaged). Head pale, with dark brown patches on vertex, frons and clypeus pale, vertex with a slightly marked, longitudinal sulcus, length of head 0.59 mm, width 0.65 mm, diameter of eye 0.19 mm. Antennae removed from the margins of eyes, pale, covered with dense, pale, semi-erect setae, first segment pale with a dark ring at base, second segment obscured at base then pale, only slightly thicker in the apical part, third segment dark, thin, only its basal part could be examined, the rest and the fourth segment broken

in the examined specimen. Length of antennal segments in mm: 0.31: 1.0. Rostrum broken in the examined specimen.

Pronotal collar invisible, pronotum brown, with numerous darker patches, pale along posterior margin, lateral margins and humeral angles elevated, anterior lobe darker, raised, calli fused. Length of pronotum 0.44 mm, anterior margin 0.52 mm, lateral margins 0.46 mm, posterior margin 0.98 mm. Mesoscutum broad, unicoloured, dark brown, scutellum dark brown, pale in the apical part.

Hemelytra brown, covered with small, pale spots, cuneus brown, pale at base and at apex, the apex of hemelytra pale, membrane pale grey, venation pale brown.

Unfortunately the specimen was examined before my study, abdomen and legs were dissected and lost. Foreleg brown, femora slightly paler at apex, tibiae slightly paler at apex and at base, remaining legs broken in the examined specimen.

Distribution: Central African Republic.

Peritropis rostrata sp. nov.

Type material

Holotype: On a fungus in shade [handwritten]; Osiem [handwritten], Ghana, 30. IX. 65; in MRAC.

Diagnosis: This species is similar to *Peritropis smreczynskii* Gorczyca but differs from it in broader body, shorter hemelytra and sharply ended clypeus.

Description: Female (male unknown). Body stout, brown-yellow, with darker patches and marked with small, pale dots and spots, covered with shining setae. Length of the body 4.42 mm, width 2.0 mm. Head pale with two dark patches on vertex and frons, vertex with transverse carina, clypeus and mandibular plate pale, maxillary plate and clypeus darkened on sides. Eyes contiguous with the margin of pronotum, covered with short, protruding setae. Length of head 0.70 mm, width 0.75 mm, diameter of eyes 0.20 mm. Antennae contiguous with the margin of eye. First antennal segment pale with a brown patch in one-third and slightly darkened at apex. Second segment very thin, slightly tickened in the apical part, darkened, covered with short setae, shorter than third and fourth segments together. Third and fourth segments very thin, dark, covered with dense setae. Length of antennal segments in mm: 0.31: 1.10: 1.43 (third and fourth together). Rostrum reaching the mid of abdomen, first segment longer than head from sides.

Pronotum dark brown on sides, with yellow patches on the callar area and yellow along posterior margin. Humeral angles elevated, calli slightly raised,

there is a distinct tubercle in the middle of pronotum. Length of pronotum 0.60 mm, anterior margin 0.65 mm, lateral margins 0.65 mm, posterior margin 1.43 mm. Mesoscutum pale, darker on sides, scutellum brown with paler spots and a pale, broad, short, longitudinal stripe in the middle, the apex of scutellum pale.

Hemelytra brown with large pale areas, clavus broad, dark, with rib-like vein and with a chestnut patch in the middle. Embolium widens towards cuneus, pale orange to brown with small, paler spots. Cuneus very broad and long, brown, tinged with red, with small, paler dots. Corium with a large chestnut patch above membrane, membrane pale with large, dark grey patches and smaller dark areas, venation bicellulated, partly reddish.

Underside of the body pale with red and brown areas, forecoxae reddish, femora brown, distinctly tinged with red, pale at apex, metafemora reddish, with a pale ring in the apical part, bearing very long trichobothria apically. Tibiae and tarsi brown.

Distribution: Ghana.

Peritropis rugulosa sp. nov.

Type material

Holotype: Coll Mus. Congo, Bas-Congo: Mayidi, 1952, R. P. Van Eyen; Allotypus [pink label]; *Peritropis rugulosus* sp. n. G. Schmitz det. 1968; (MRAC).

Diagnosis: Among the other representatives of the genus it can be distinguished by broad, brown, almost unicoloured pronotum and hemelytra distinctly narrowed towards the end of the body (Fig. 38).

Description: Male (female unknown). Body stout, short, covered with very short, white, scale-like setae, length of the body 2.8 mm, width 1.20 mm. Head unicoloured, brown, vertex with a depression in the middle, length of head 0.39 mm, width 0.65 mm, diameter of eye 0.18 mm. Antennae short, contiguous with the margins of eyes, covered sparingly with very short setae, first segment pale at base then brown, second segment thick, brown with a paler ring in the middle, third and fourth segments short, brown, the last segment divided in one third. Length of antennal segments in mm: 0.18: 0.70: 0.19: 0.23. Rostrum reaching beyond metacoxae, not well visible in the examined specimen.

Pronotal collar not visible, pronotum broad, slightly rugose, unicoloured, brown, anterior lobe of pronotum slightly raised, darker, calli almost fused, lateral margins elevated. Length of pronotum 0.46 mm, anterior margin 0.54 mm, lateral margins 0.52 mm, posterior margin 1.17 mm. Mesoscutum broad, with distinct carina on sides, dark brown, scutellum dark brown, paler at apex.

Hemelytra distinctly narrowed towards membrane, brown, with very small, translucent dots, clavus brown, anal vein marked, embolium pale brown, darkened towards the apex, cuneus dark brown, corium paler in the part contiguous with membrane, membrane pale, venation pale brown, major cell triangular with a small stub.

Underside of the body brown, meso- and metacoxae paler, femora dark brown, paler at base, tibiae brown, tarsi very short, pale brown, two-segmented, second segment divided, claws with a distinct subapical tooth. Unfortunately the abdomen of the examined specimen was dissected before my study and parameres were deformed under slides.

Distribution: Congo (Kinshasa).

Peritropis rynskii sp. nov.

Type material

Holotype: South Africa: Transvaal: Kruger National Park, Punda Milia Camp, May 7, 1968, R.T. Schuh [handwritten]; R. T. Schuh collection [orange label]; (MRAC).

Etymology: This species is named after my long-standing friend Andrzej Ryński.

Diagnosis: This species is similar in coloration to *Peritropis africana* but it can be recognised by its size, longer rostrum, antennae covered with dense, pale setae and the shape of parameres (Figs 37C—D).

Description: Male (female unknown). Body brown, mottled with small, pale dots and patches, length of the body 4 mm, width 1.43 mm. Head pale, mottled with numerous dark brown and red patches, vertex with a longitudinal sulcus in the middle. Length of head 0.72 mm, width 0.65 mm, diameter of eye 0.18 mm. Eyes small in top view, elongated from side, antennae removed from the margins of eyes. First antennal segment thick at base then rapidly thickened, pale brown, covered with dense, pale setae, second segment thin, brown, red at apex, covered with dense, pale, fine setae shorter than its diameter. Third and fourth segments thin, short, pale brown, covered with pale, dense, protruding setae, longer than the diameter of segments. Length of antennal segments in mm: 0.39: 1.17: 0.31: 0.65. Rostrum long, reaching pygophor, first segment tinged with red, remaining segments pale brown. Length of rostral segments in mm: 0.46: 0.83: 0.65: 0.44.

Pronotum brown, partly dark brown, marked with pale spots and patches, lateral margins and humeral angles elevated. Length of pronotum 0.54 mm, anterior margin 0.39 mm, lateral margins 0.59 mm, posterior margin 1.30 mm. Mesoscutum with a paler, raised, transverse ridge, scutellum dark brown with small, pale spots and white apex.

Hemelytra brown, mottled with small, pale spots, clavus with rib-like vein in the middle, embolium thin, pale with the dark brown external margin. Cuneus broad, dark brown, slightly tinged with red, pale at apex and base, with a few small, paler spots.

Underside of the body brown with paler areas, abdomen chestnut, forecoxae brown, meso- and metacoxae white, forefemora brown, pale at apex, meso- and metafemora brown, tinged with red, pale at base and apex, metafemora with a large, pale patch in the apical part. Tibiae brown, paler at base, tarsi pale brown. Parameres elongated (Figs C—D).

Distribution: South Africa: Transvaal.

Peritropis schaeferi sp. nov.

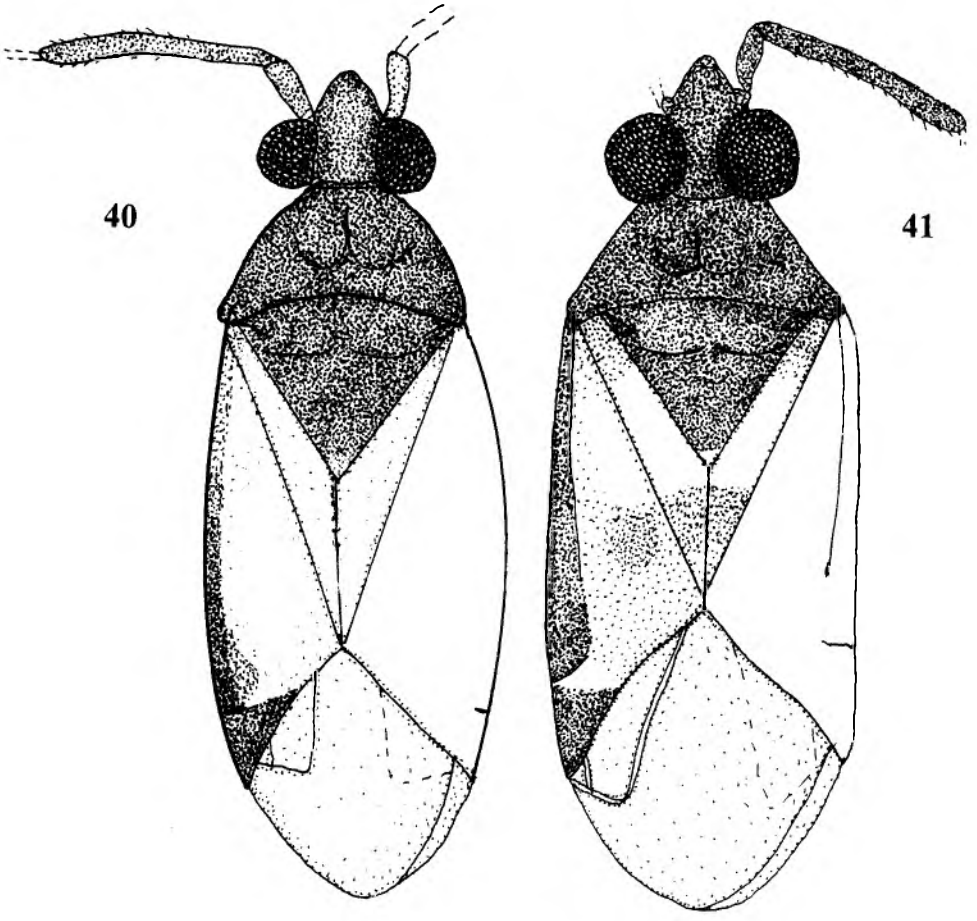
Type material

Holotype (male): UV Trap; Tafo, Ghana, 23. I. 66; paratypes (two females): paratypus [pink label]; Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, V. 1962, J. Decelle; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1968; MRAC; paratype (male): Ile-Ife, Nigeria, 25 Jan. 1971, Col. J. T. Medler; Lh-326; paratypus [pink label]; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1973; LC; paratype (female): Allotype [pink label]; Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, III. 1962, J. Decelle; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1968; paratype (female): paratypus [pink label]; Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, XII. 1961, J. Decelle; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1968; paratype (female): Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, IV. 1962, J. Decelle; paratypus; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1968; paratype (male): holotypus [pink label] Coll. Mus. Tervuren, Cote d'Ivoire: Bingerville, X. 1962, J. Decelle; *Peritropis* (*Amydrocyphus*) *boops* sbg. n. sp. n., G. Schmitz det. 1968; paratype (male): UV Trap; Tafo, Ghana, 13: I : 66; paratype (male): At light, Tafo, Ghana, 4. X. 65; paratypes (two males): UV Trap; Tafo, Ghana, 11, 12. I. 66; paratype (male): UV Trap; Tafo, Ghana, 4. III. 66; paratype (male): U.V. trap; Tafo, Ghana, 17. XII. 67; paratype (male): UV Trap; Tafo, Ghana, 25. X. 65; paratype (male): UV Trap; Tafo, Ghana, 26. I. 66; paratype (male): UV Trap; Tafo, Ghana, 28: XI: 65; paratype (male): Tafo, Ghana, 24. XI. 66; UV Trap; paratype (female): UV Trap; Tafo, Ghana, 20: I: 66; paratype (male): UV Trap; Tafo, Ghana, 23. I. 66; paratype (female): U.V. trap; Tafo, Ghana, 10: X: 66; paratype (female): U. V. trap Tafo, Ghana, 28: IV: 66; paratype (male): UV Trap; Tafo, Ghana, 1. IV: 66. paratype (female): Ivory Coast. Adiopodoune, 29. IX. — X. 73, Linnavuori, paratype (male): Nigeria W. St. Iaboho-Kishi, 19. VII. 73, Linnavuori. Nineteen paratypes (MRAC), five paratypes (SU); two paratypes (males): N. Nigeria, Zaria, Samaru, vi, 1979, J. C. Deeming; paratype (male): N. Nigeria, Zaria, Samaru, vii, 1979, J. C. Deeming, paratype (female): N. Nigeria, Zaria, Samaru, ix, 1979, J. C. Deeming; paratype (female): N. Nigeria, Zaria, Samaru, xi, 1979, J. C. Deeming. One paratype in SU, four in NMWC.

Etymology: This species is in honour of Professor Carl W. Schaefer, University of Connecticut, USA, with warm thanks for his help with my studies.

Diagnosis: Among the other representatives of the genus it can be distinguished by the almost parallel margins of hemelytra, pronotum convex, unicoloured, black or dark brown, head, mesoscutum and scutellum unicoloured, black or dark brown, clavus and corium at least partly translucent and very thin embolium.

Description: Male. Body elongated, covered with pale, fine setae, length of the body 2.60—3.12 mm, width 0.96—1.0 mm; head black or dark brown, eyes very large (Fig. 40), elongated in side view, occupying almost the whole extent of head, length of head 0.34—0.41 mm, width 0.60—0.65 mm, diameter of eye 0.21 mm. Antennae unicoloured, brown, contiguous with the margins



Figs 40—41. Dorsal habitus, 40 — *Peritropis schaeferi* sp. nov., holotype; 41 — *P. schmitzi* sp. nov., holotype

of eyes, first antennal segment relatively thin, second segment thick, slightly thickened towards the apex, covered with very dense, short, semi-erect setae, third and fourth segments covered with dense, pale, erect setae, fourth segment divided in the middle. Length of antennal segments in mm: 0.23: 0.72—0.83: 0.33: 0.39. Rostrum reaching beyond metacoxae, first segment brown, remaining segments pale brown.

Pronotum rounded, convex, unicoloured, dark brown to black, the callar area only slightly raised, with a thin longitudinal sulcus in the middle, lateral margins slightly elevated. Length of pronotum 0.36—0.44 mm, anterior margin 0.50—0.52 mm, lateral margins 0.42—0.47 mm, posterior margin 0.85—0.93 mm. Mesoscutum and scutellum unicoloured, dark brown, scutellum slightly paler at apex.

Hemelytra translucent, only embolium and cuneus brown, embolium darkened from base to apex, corium covered with pale, fine setae and short, brown setae, membrane pale, shining, venation pale, major cell triangular.

Underside of the body brown, femora pale brown in the apical part, tibiae pale to pale brown, tarsi short, pale, second segment divided, claws with a distinct subapical tooth.

Female bigger than male, corium brown, translucent only at base, clavus translucent, brown at base and apex, there is a large, white patch above cuneus, cuneus brown, pale at apex. Length of the body 3.22—3.43 mm, width 1.14—1.17 mm, length of head 0.36 mm, width 0.65 mm, diameter of eye 0.18 mm. Length of antennal segments in mm: 0.27: 0.83 (remaining segments broken in the examined specimens). Length of pronotum 0.41 mm, anterior margin 0.65 mm, lateral margins 0.49 mm, posterior margin 1.1 mm.

Distribution: Ivory Coast, Ghana, Nigeria.

Peritropis schmitzi sp. nov.

Type material

Holotype: Sudan, Equatoria, Ibba-Yambio, 16. IV. 63, Linnavuori; paratypus [pink label]; *Peritropis* (*Amydrocyphus*) *myops* sp. n. [handwritten], G. Schmitz det. 1968, (MRAC); paratype: same data sa holotype; paratype (male): Sudan, Equatoria, Ibba-Yambio, 17—25 IV. 63; paratypus [pink label]; *Peritropis* (*Amydrocyphus*) *myops* sp. n. [handwritten], G. Schmitz det. 1968. One paratype in JGC one in LC.

Etymology: This species is named in honour of Dr. Guy Schmitz, a long-standing curator of the heteropteran collection in the Musée Royal de l'Afrique Centrale, Tervuren, Belgium.

Diagnosis: Very similar to *P. schaeferi* but differs in paler coloration of pronotum and scutellum, and in very large, prominent eyes (Fig. 41).

Description: Male (female unknown). Body elongated, shining, covered with fine, pale setae, length of the body 2.86 mm, width 1.0 mm. Head brown, vertex very narrow, eyes very large, prominent, round in top view, from sides elongated, occupying almost the whole part of head before antenniferous tubercles. Length of head 0.45 mm, width 0.67—0.70 mm, diameter of eye 0.26—0.28 mm. Antennae contiguous with the margin of eye, first segment thin, short, pale brown, second segment almost cylindrical, brown, slightly darkened towards the apex, covered with short, pale setae. Third and fourth segments thin, short, unicoloured, brown. Length of antennal segments in mm: 0.26: 0.83: 0.31: 0.14. Rostrum pale brown, reaching well beyond metacoxae, first segment longer than head.

Pronotal collar invisible, pronotum unicoloured, dark brown, callar area slightly raised, calli fused with a weakly marked, longitudinal sulcus in the middle. Length of pronotum 0.39 mm, anterior margin 0.52 mm, lateral margins 0.52 mm, posterior margin 0.98 mm. Mesoscutum and scutellum chestnut, scutellum pale at the extreme apex.

Hemelytra almost parallel, translucent except the distal part of embolium and cuneus, the basal part brown, topped with a broad, transverse, pale stripe crossing corium and the middle part of clavus. Corium with a large, indistinct, red or brownish patch in the middle. The distal part of embolium and cuneus dark brown, tinged with red.

Underside of the body chestnut, coxae white, femora pale at base then pale brown, darkened at apex, the extreme apex red, tibiae and tarsi pale, second tarsal segment divided, claws with a distinct subapical tooth. Unfortunately abdomens of all available specimens had been dissected before my study.

Distribution: Sudan: Equatoria.

Peritropis selene Linnavuori

Peritropis selene Linnavuori, 1994: 151
Peritropis selene: Kerzhner & Josifov, 1999: 9

Type material examined:

Holotype (male): Socotra, Nogeed, 16. IV, 93, V. Harten [handwritten]; holotypus [red label], R. E. Linnavuori coll. NMW. Z, 1999. 004, (NMWC); two paratypes (male and female): Socotra, Nogeed, 16. V 93, V. Harten [handwritten]; paratype [yellow label]; paratype (female): Socotra, Nogeed, 16. 4, 93, V. Harten [handwritten]; *Peritropis selene* [handwritten]; paratype [yellow label]; paratype (female): Socotra, Halibo, 13—14. 4, 93, V. Harten [handwritten]; paratype [yellow label]. One female in JGC, three paratypes in LC.

Diagnosis: This species is similar to *P. botswanica* and *P. stysi* but it can be distinguished from them by coloration and very long, thin second antennal segment.

Redescription: Male (macropterous). Body whitish ochraceous with numerous small, dark brown irroration, covered with fine, pale, short setae. Length of the body 2.75 mm, width 0.90 mm. Head with a distinct, long, longitudinal sulcus in the middle, length of head 0.48 mm, width 0.56 mm, diameter of eye 0.18 mm. First antennal segment white with brown patches, second segment with brown patch at base then with white and brown bands, the apical third brown, third and fourth segments very short, brown. Length of the antennal segments in mm: 0.32: 1.28: 0.24: 0.16. Rostrum long, reaching pygophor.

Pronotum with dense, dark brown irroration, anterior lobe of pronotum raised, with distinct, longitudinal sulcus between calli and A-shaped, raised pattern, posterior margin of pronotum sinuate (LINNAVUORI, 1994, Fig. 1a). Length of pronotum 0.36 mm, anterior margin 0.52 mm, lateral margins 0.40 mm, posterior margin 1.0 mm. Mesoscutum dark brown, scutellum dark brown, paler on sides and at apex.

Hemelytra pale with numerous small spots, membrane dark with dense irroration.

Underside of the body white with chestnut areas, coxae white, mesocoxae with a longitudinal row of small dots, femora and tibiae pale with brown patches and spots, tarsi very short, brown. Genitalia not examined.

Female (brachypterous; LINNAVUORI, 1994, Fig. 1c). Length of the body 2.60—2.72 mm, width 1.0 mm, length of head 0.60 mm, width 0.52 mm, diameter of eye 0.14 mm. Length of antennal segments in mm: 0.36: 1.24: 0.24: 0.20. Length of pronotum 0.36 mm, anterior margin 0.60 mm, lateral margins 0.44 mm, posterior margin 0.80 mm.

Distribution: Yemen: Socotra.

Peritropis smreczynskii Gorczyca

Peritropis smreczynskii Gorczyca, 1997c: 185
Peritropis smreczynskii: Gorczyca, 1998e: 199

Type material examined

Holotype: Tanzania, Hmoni, Tanga region [handwritten]; No 149, 18 II. 1937, leg. S. Hahuuka [handwritten]; *Peritropis smreczynskii* sp. n., det. J. Gorczyca, 1997. In HNHM.

Diagnosis: It can be distinguished from all known representatives of the genus by long and thin second antennal segment and the anterior lobe of pronotum with a single tubercle projecting backward (GORCZYCA, 1997c, Fig. 1).

Redescription: Female (male unknown). Body oval, covered with short, pale setae. Length of the body 4.6 mm, width 2.0 mm. Head pale, vertex with a longitudinal sulcus in the middle, frons pale brown with small red patches. Clypeus pale, tinged with red at base, mandibular plate pale, tinged with brown and red. Length of head 0.5 mm, width 0.8 mm, diameter of eye 0.2 mm. Antennae contiguous with the margin of eye, inserted on distinct, brown tubercles. First antennal segment thin and brown at base then pale brown, slightly tinged with red and sparingly covered with short setae; second segment brown, slightly thickened towards the apex, covered with short, pale setae. Third and fourth segments thin, brown, covered with dense, protruding setae, much longer than the diameter of the segments. Length of antennal segments in mm: 0.36: 1.28: 0.72: 0.8.

Pronotal collar distinct, pale in the middle, brown on sides. Pronotum pale with broad, brown stripes contiguous with the lateral margins. Anterior lobe slightly tinged with red in the middle, dark brown with small pale patches on sides and with a distinct tubercle in the middle of its posterior margin. Length of pronotum 0.52 mm, anterior margin 0.6 mm, lateral margins 0.7 mm, posterior margin 1.4 mm.

Mesoscutum exposed, brown with pale and orange patches, scutellum raised, brown, pale at apex, with a reddish, longitudinal stripe in the middle.

Hemelytra brown, mottled with pale patches, embolium brown, pale in the middle and above cuneus. There is a big chestnut patch in the middle of clavus and above membrane. Cuneus red brown, with a small, pale patch at apex. Membrane bicellulated, pale grey with darker small patches and stripes, venation well marked.

Underside of the body red with white patches and stripes, forefemora brown, tinged with red, pale at apex and with a pale ring in the apical part. Foretibiae and mesotibiae brown with a pale ring in the apical part and with rows of short, pale setae, tarsi short and thin, two-segmented, claws with a very small subapical tooth, fore- and mesotarsi pale brown, second tarsal segment divided. Mesofemora pale at base then pale brown, with broad, pale rings in the apical part, metalegs broken in the examined specimen.

Distribution: Tanzania.

Peritropis stysi sp. nov.

Type material

Holotype: Sudan, Red Sea, Hille, Erkowit, 1067 m., 18. 9. 1966, Štys/416; paratypus [pink label]; *Peritropis stysi* sp. n. [handwritten], G. Schmitz det. 1973; paratype: Sudan, Red Sea, Hille, Erkowit, 1067 m., 21. 9. 1966, Štys/438; paratypus [pink label]; *Peritropis stysi* sp. n. [handwritten], G. Schmitz det. 1973. Both in MRAC.

Etymology: This species is named in honour of the collector and well-known heteropterologist Professor Pavel Štys, Charles University, Praha, Czech Republic.

Diagnosis: Among the other species of the genus it can be distinguished by pronotum and hemelytra covered with small, translucent dots and dense, dark, very small marks, and by narrow hemelytra, only slightly wider than pronotum.

Description: Male (female unknown). Body small, brownish, matt, covered with fine, short setae, length of the body 3.12—3.17 mm, width 1.17 mm. Head mottled with small, brown and pale patches, vertex depressed in the middle and with distinct occipital carina, eyes relatively large, clypeus long, paler, covered with small dark dots, mandibular plate tinged with red. Length of head 0.52 mm, width 0.65 mm, diameter of eye 0.20 mm. Antennae contiguous with the margins of eyes, first segment pale at base then red or brown, second segment thin, almost cylindrical, dark brown with a few small, pale patches in the basal half, covered with dense, short, pale setae. Length of antennal segments in mm: 0.26: 0.93 (third and fourth segments broken in the examined specimens). Rostrum reaching beyond metacoxae, individual segments not visible in the examined specimens.

Pronotal collar invisible, pronotum mottled with small pale dots and dark marks, lateral margins of pronotum elevated, anterior lobe raised, pale on the top, calli almost fused, separated only by a thin, longitudinal sulcus, lateral and posterior margins with small, pale and brown patches. Length of pronotum 0.44 mm, anterior margin 0.59 mm, lateral margins 0.44 mm, posterior margin 1.0 mm. Mesoscutum and scutellum unicoloured, dark brown, covered with small, pale patches.

Hemelytra pale brown, mottled with small, pale patches and dense, dark marks, clavus with rib-like anal vein, embolium narrow, tinged with red, with a longitudinal row of chestnut patches on its external margin. Corium with a dark patch above cuneus, contiguous with membrane, cuneus brown, tinged with red on sides, covered with small, pale patches, membrane dark grey with numerous small, pale patches, venation brownish with few small, paler dots, major cell triangular.

Underside of the body dark brown, femora pale at base, then pale with the apical part chestnut, covered on the margins with small pale spots and bands, which come together in the apical part, the extreme apex pale, tibiae chestnut, pale at apex and at base, covered with small, pale patches and short setae. Tarsi very short, pale, second segment divided, the subapical tooth very small, hardly visible.

Distribution: Sudan.

Peritropis tanzanica Gorczyca

Peritropis tanzanica Gorczyca, 1999a: 21

Type material examined

Holotype: Tanzanie: Mts Uluguru, Kimboza for.heliophile alt. 600 m, 24—30/VII/71; Coll. Mus. Tervuren, Mission Mts Uluguru, L. Berger, N. Leleuo, J. Debecker V/VIII/71; holotype [red label]; *Peritropis tanzanica* sp. n., det. J. Gorczyca, 1997; paratype: same data as holotype. Both in MRAC.

Diagnosis: It is a unique species which differs from all known representatives of the genus in coloration, the shape of the body, hemelytra covered with thick, black, closely fitting setae and eyes covered with pale, protruding setae.

Redescription: Male (female unknown). Body elongated, oval, white with brown and reddish spots and patches. Length of the body 4.9—5 mm, width 1.8—1.85 mm. Head pale with two reddish patches on vertex, covered with dense, fine, pale setae, clypeus, mandibular and maxillary plates with small dark brown patches. There are a few small tubercles on frons and vertex. Length of head 0.72 mm, width 0.52 mm, diameter of eye 0.20 mm. Eyes relatively large, covered with fine, pale, protruding setae, antennae inserted on tubercles closely fitting, almost squeezed in the inner margins of eyes. First antennal segment white, covered with pale setae and small brown tubercles, second segment white at base then pale, tinged with red, covered with pale setae and small, brown tubercles. Third and fourth segments pale brown, covered with long, protruding setae. The last segment divided approximately in the middle, the second part slightly thickened. Length of antennal segments in mm: 0.52: 1.0: 0.4: 0.49 (0.26 + 0.23). Rostrum long, reaching pygophor, thin, brown, first segment brown, almost as long as head from sides. Third segment slightly swollen at base.

Pronotum white with an irregular, chestnut circle around its anterior lobe, pronotal collar thin, hardly visible. Pronotum covered with dense, fine, curled, white setae and long, thick, brown, protruding spines inserted on small tubercles. Length of pronotum 0.59 mm, anterior margin 0.65 mm, lateral margins 0.80 mm, posterior margin 1.50 mm, posterior margin with an incision. Mesoscutum well exposed, mesoscutum and scutellum pale, with small red or chestnut patches in the angles and a dark, broad, longitudinal stripe in the middle, covered with fine setae and small tubercles.

Hemelytra distinctly narrowed towards membrane, white, clavus with rib-like claval vein, covered with small, red dots and big red patches, embolium with a longitudinal row of brown patches, corium covered with fine, pale setae and thick, dark setae. There are also numerous small, chestnut spots

and a dark patch above cuneus. Cuneus broad, white, covered with numerous small dots and thick, black setae. Membrane long, distinctly extended to corium, pale, covered with dark patches, venation indistinct.

Underside of the body covered with long, pale setae, femora pale, covered with small dots, large, brown patches and fine, pale setae. Tibiae pale, covered with brown patches and pale setae. Tarsi pale, second segment divided, claws toothed subapically. Parameres very thin, aedeagus with sclerotized spicules (GORCZYCA, 1999a, Figs 1—3).

Distribution: Tanzania.

Phyllofulvidius gen. nov.

Type species: *Phyllofulvidius africanus* sp. nov.

Diagnosis: This genus differs from all other genera of the tribe in the first segment of antennae rapidly widened from the base towards the apex, strongly flattened second antennal segment (Fig. 42) and the colour pattern on membrane. Superficially it is very similar to the Australian genus *Phyllofulvius* Carvalho but differs from it in the shorter first segment of rostrum, fused calli, the shape of the apex of second antennal segment and the shape of parameres and aedeagus. Gender masculine.

Description: Body smooth, elongate, covered with dense, long setae, eyes large, covered with short, protruding setae, antenniferous tubercles broad, contiguous with the margins of eyes, eyes contiguous with pronotal collar, first antennal segment cone-like, second segment long, leaf-like, wider than the diameter of eye, third segment very short, thin. First segment of rostrum as long as head from sides, second segment thin at base, remaining segments not well visible in the examined specimen.

Pronotal collar marked, calli fused, slightly raised, with a weakly marked, longitudinal sulcus in the middle. Lateral margins elevated, posterior margin with a broad incision, mesoscutum very broad, with carina on sides and with a slightly marked, longitudinal depression in the middle of its posterior margin, scutellum short, flat.

Hemelytra well developed, narrowed towards the apex, embolium narrow, costal fracture present, membrane covered with numerous grey patches, major cell rounded.

Forefemora covered with dense, thick, protruding setae, metafemora very broad, flat, covered with setae, bearing long trichobothria in the apical part, tarsi two-segmented, covered with long setae, claws toothed subapically (Fig. 43E).

Phyllofulvidius africanus sp. nov.

Type material
Holotype: UV Trap; Tafo, Ghana, 10: I: 66, (MRAC).

Diagnosis: See the genus.

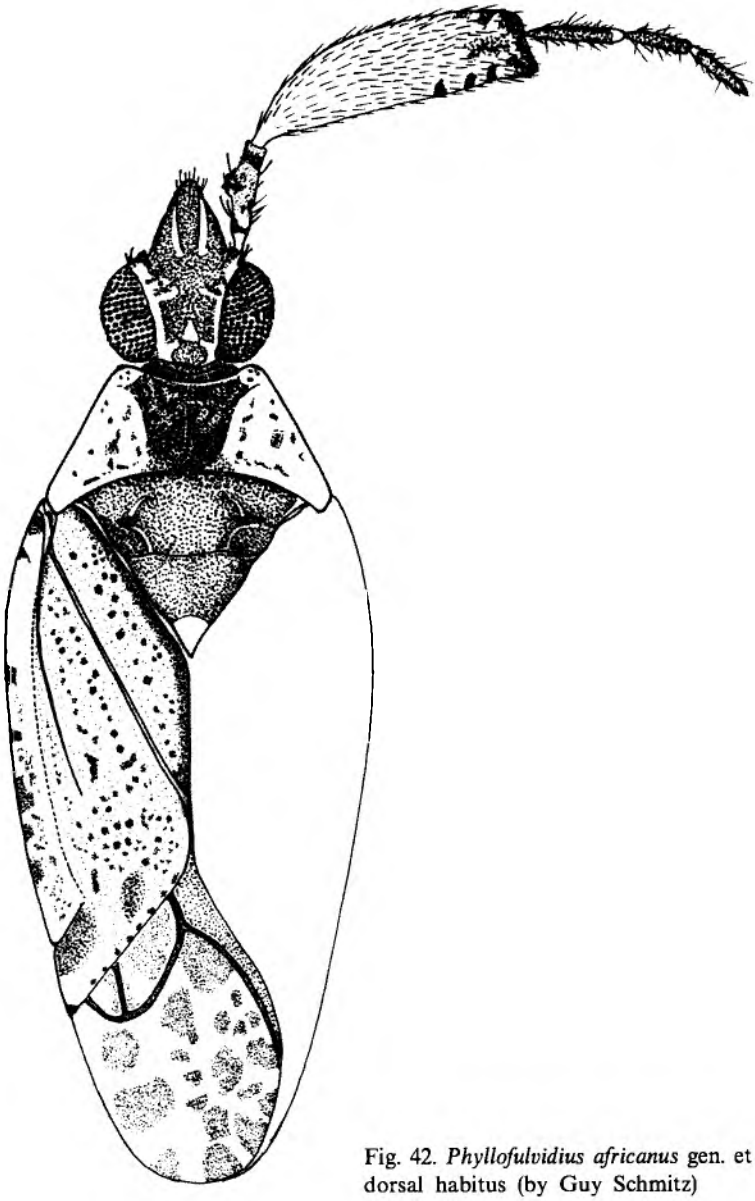
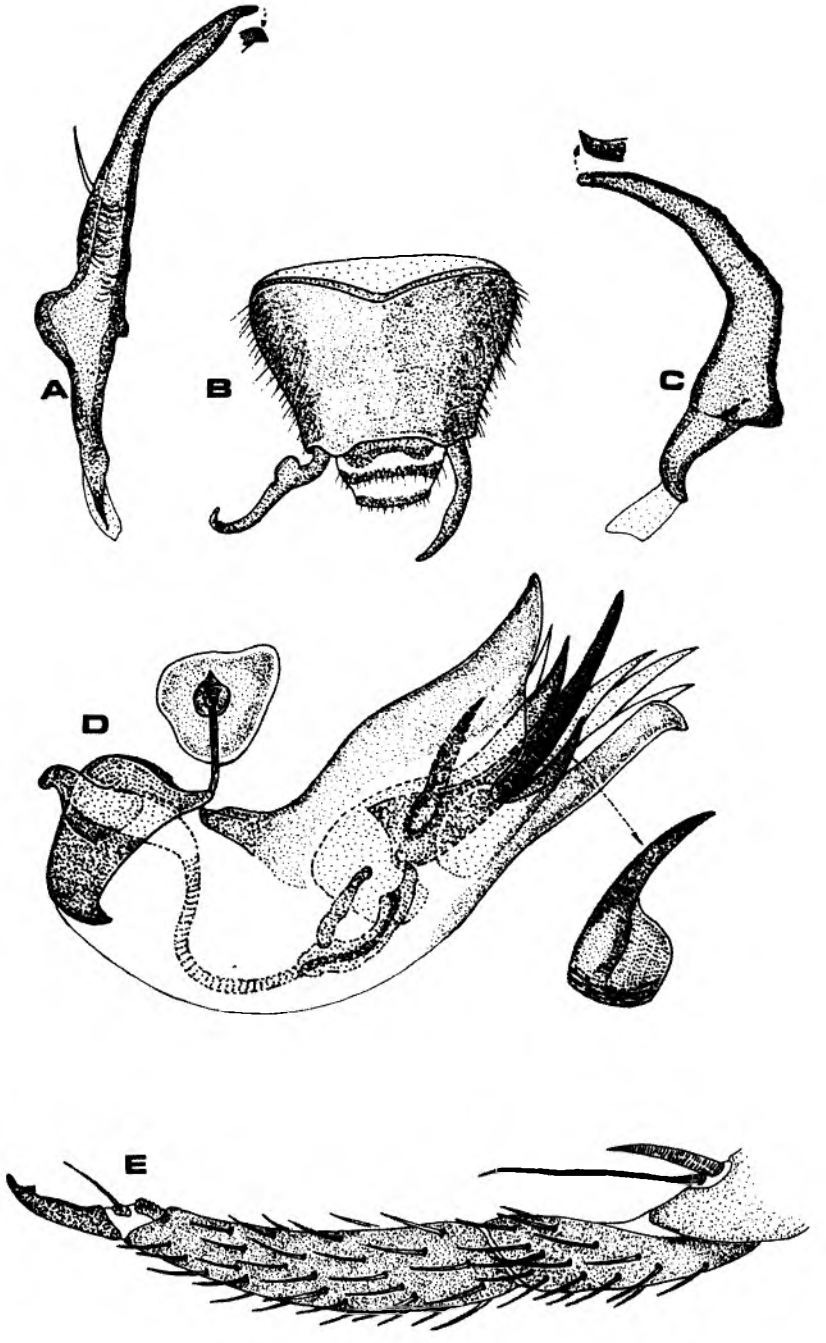


Fig. 42. *Phyllofulvidius africanus* gen. et sp. nov., dorsal habitus (by Guy Schmitz)



Figs 43A—E. *Phyllofulvidius africanus* gen. et sp. nov., A — right paramere, B — genital segment, C — left paramere, D — aedeagus, E — metatarsi (by Guy Schmitz)

Description: Male (female unknown). Body dark, with paler areas, covered with dark, thick setae, length of the body 3.40 mm, width 1.30 mm. Head dark brown with paler patches, covered with pale and dark setae. There are two pale spots contiguous with the inner margins of eyes and two smaller pale spots on frons. Clypeus, mandibular and maxillary plates brown. Length of head 0.54 mm, width 0.72 mm, diameter of eye 0.18 mm. First antennal segment dark brown with paler patches, second segment pale brown, covered with dense, short, pale and dark setae, tinged with orange and marked with dark brown patches in the apical part. There are four dark brown dots contiguous with the inner margins of the apical part. Third segment very thin, brown at base, pale at apex, covered with dense, pale, long setae, fourth segment broken in the examined specimen. Length of antennal segments in mm: 0.36: 1.0: 0.20. First segment of rostrum dark brown, second pale in the basal part, remaining segments invisible in the examined specimen.

Pronotum dark brown with paler areas on sides, covered with dense, fine, pale hairs and with long, thick, dark setae, anterior lobe dark brown, lateral margins pale with small, dark dots and tubercles. Length of pronotum 0.46 mm, anterior margin 0.57 mm, lateral margins 0.65 mm, posterior margin 1.14 mm. Mesoscutum very broad, unicoloured, dark brown, raised on sides, with a slightly marked, longitudinal depression in the middle of its posterior margin, scutellum dark brown, short, flat.

Hemelytra brown with paler areas, covered with dense, pale, fine hairs and a few dark, thick, long setae, clavus dark, covered with darker spots and patches, embolium pale at base with a dark brown patch, then dark brown, slightly widened towards cuneus, cuneus wide, covered with dense, dark setae, pale brown, dark at apex and darker along its external margin. Corium paler in the apical part, with two dark brown patches above cuneus. Membrane pale, with numerous grey patches, venation well marked.

Underside of the body dark brown, coxae brown, femora brown, pale at apex, tibiae pale with dark brown rings, covered with dense, short setae, tarsi pale brown, subapical tooth distinct. Parameres slender, aedeagus with sclerotized spiculae (Figs 43A—D).

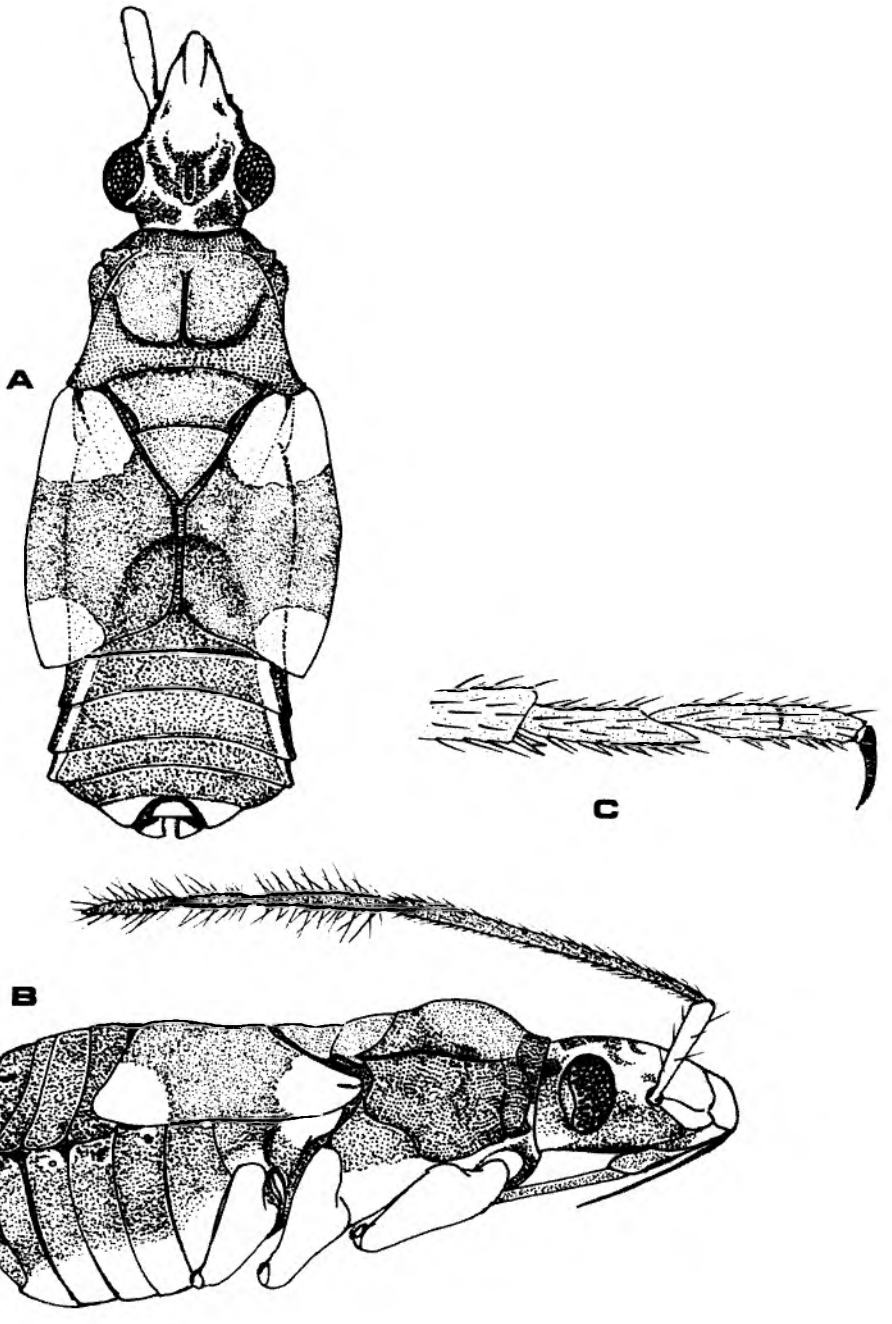
Distribution: Ghana.

Rhinofulvius Reuter

Type species: *Fulvius albifrons* Reuter, 1895 (original designation)

Rhinofulvius Reuter, 1902: 156

Rhinofulvius: Reuter, 1903: 1; Kirkaldy, 1906a: 143; Poppius, 1909: 19; Reuter, 1910: 154; Poppius, 1912: 165; Bergroth, 1920: 77; Carvalho, 1952b: 48; Carvalho, 1955a: 20; Carvalho, 1957: 23; Schuh, 1995: 36; Kerzhner & Josifov, 1999: 9



Figs 44A—C. *Rhinofulvius albifrons* (Reuter), A — dorsal habitus, B — side view, C — tarsi (by Guy Schmitz)

Diagnosis: Known only from a single, brachypterous female. From other genera it can be distinguished by short rostral segment, long pronotum, mesoscutum not separated from scutellum, antennae removed from the margins of eyes and very thin embolium.

Redescription: Body smooth, elongated, head long, triangular, antennae inserted on small tubercles removed from the margins of eyes (Figs 44A—B). Vertex with a longitudinal sulcus in the middle, first antennal segment very short, eyes almost contiguous with the margin of pronotum. First segment of rostrum distinctly shorter than head in side view.

Pronotum narrow, elongated, with a broad incision, anterior lobe broadly exposed, with a thin, longitudinal sulcus in the middle. Humeral angles of pronotum slightly elevated, the lateral margins distinctly elevated in side view, mesoscutum not exposed, scutellum long.

Forewings short (at least in brachypterous forms), reaching the mid of abdomen (Figs 44A—B), clavus and cuneus not separated.

Tarsi two-segmented, second segment divided, claws with a very small, indistinct subapical tooth (Fig. 44C) — according to Schmitz's picture.

Rhinofulvius albifrons (Reuter)

Fulvius albifrons Reuter, 1895: 151
Rhinofulvius albifrons Reuter, 1902: 156
Rhinofulvius albifrons: Reuter, 1903: 2; Poppius, 1912: 165; Bergroth, 1920: 77; Carvalho, 1952b: 48; Carvalho, 1957: 24; Schuh, 1995: 36; Kerzhner & Josifov, 1999: 9

Type material examined

Lectotype — present designation: Aden. Simon [handwritten]; *Rhinofulvius albifrons* Reut.; [handwritten old label]; *Rhinofulvius albifrons* g. n. sp. n. O. Reuter — 1902 [handwritten recent label]; Typus, R. Linnavuori det. [red label]; holotypus [pink label]; Mus. Zool. H; fors, Spec. typ. No 12347, *Rhinofulvius albifrons* Reuter; Lectotypus *Fulvius albifrons* Reut. design. Kerzhner [handwritten, red label]. (ZMHU).

Diagnosis: Only one species is known so far.

Redescription: Female (male unknown). Body elongately oval (Figs 44A—B), brown with white areas, length of the body 4.16 mm, width 1.43 mm. Head elongated, length of head 0.75 mm, width 0.78 mm, diameter of eye 0.20 mm. Vertex brown with a few small, pale dots and with a V-shaped paler patch. Frons with brown patches at base, otherwise white, clypeus, mandibular and maxillary plates white. First antennal segment white, second segment brown, thin, slightly thickened towards the apex, covered with dense, short setae, third and fourth segments brown, thin, covered with dense, semi-erect setae, longer than the diameter of the segments, fourth segment (according

to Schmitz's pictures) divided. Length of antennal segments in mm: 0.39: 1.24: 1.0 (third and fourth together). Rostrum reaching metacoxae, first segment tinged with red, remaining segments brown.

Pronotum and scutellum dark brown, length of pronotum 0.54 mm, anterior margin 0.46 mm, lateral margins 0.65 mm, posterior margin 0.99 mm.

Elytra dark brown with large, white patches at base and apex.

Underside of the body dark brown, coxae white, femora pale brown with a darker brown patch in the apical part, metafemora covered sparingly with short spines. Tibiae pale covered with rows of short setae, tarsi pale brown.

Distribution: Yemen: Aden.

Schmitzofulvius Gorczyca

Type species: *Schmitzofulvius bigibber* Gorczyca, 1998 (original designation)
Schmitzofulvius Gorczyca, 1998b: 8
Schmitzofulvius: Gorczyca 1999b: 11

Diagnosis: It can be distinguished by strongly elongated head, relatively small eyes, pronotum with calli projecting upwards in the form of two very long, pointed cones (Gorczyca, 1998b, Figs 1—2) and claws not toothed subapically (Gorczyca, 1998b, Fig. 4).

Redescription: Body elongated, smooth, covered with very short setae. Head horizontal, strongly elongated, vertex with a longitudinal sulcus, eyes small, not reaching gula, far removed from pronotal collar. Antennae inserted on distinct tubercles, slightly removed from the margin of eye. First antennal segment relatively long, second thickened towards the apex. Rostrum thin, sharp, reaching metacoxae.

Pronotal collar thin, pronotum trapeziform with distinctly raised, sharply elevated calli, humeral angles distinctly exposed, posterior margin concave. Mesoscutum exposed, scutellum swollen, sloping posteriorly.

Hemelytra fully developed, embolium distinctly narrower at base, then widened, with small tubercles on its margin. Corium with two translucent patches: one in the middle and the other above cuneus, cuneus distinct, smaller cell hardly visible.

Legs long, metafemora typically thickened in two thirds, covered with short setae (Gorczyca, 1998b, Fig. 3). On the inner surface of metafemora there are areas of dense, very short, microscopic spines, which — together with the small tubercles on the ridge of embolium — probably function as stridulatory structures. Tarsi two-segmented, claws not toothed subapically.

Schmitzofulvius bigibber Gorczyca

Schmitzofulvius bigibber Gorczyca, 1998b: 10
Schmitzofulvius bigibber: Gorczyca, 1998c: 19, 1999b: 12

Type material examined

Holotype: Analamasotra pr. Perinet, Madag. Olsufi "ev(a) [Олсуфъева], XI. (1)930; holotypus; *Leptofulvius* g.n. *bigibber* sp. n., symbol of male [handwritten], G. Schmitz det. 1970; holotype; *Schmitzofulvius bigibber* gen. n. sp. n., det. J. Gorczyca, 1997. In ZIN.

Diagnosis: See diagnosis of *S. niger*.

Redescription: Male (female unknown). Body brownish, length of the body 4.8 mm, width 1.2 mm, length of head 0.95 mm, width 0.64 mm, diameter of eye 0.16 mm. First antennal segment brown, paler at base, dark brown at apex, covered sparingly with short setae. Second antennal segment entirely dark brown, bearing dense, short, dark setae. Length of antennal segments in mm: 0.8: 1.2 (third and fourth broken in the examined specimen). Rostrum brown, third and fourth segments darkened. Length of rostral segments in mm: 0.44: 0.72: 0.8: 0.52.

Pronotum brown, shining, darkened along lateral margins and in posterior angles, paler beyond calli, calli cone-like, brown. Pronotal collar pale brown, flat. Length of pronotum 0.60 mm, anterior margin 0.55 mm, posterior margin 1.20 mm, lateral margins 0.80 mm. Mesoscutum brown, scutellum darker than mesoscutum, shining.

Hemelytra generally brownish, clavus brown in the basal part with paler patches at apex. There are two regular paler bands parallel to claval suture, and a pale irregular line beginning at the apex of embolium, running along claval suture, and reaching the inner, apical part of cuneus. There are also paler patches in the middle part of corium and a white patch above cuneus (Fig. 45). Spines on corium dark brown, almost black, cuneus dark brown, slightly paler at apex. Membrane dark with pale triangular cell with a distinct stub.

Underside of the body brown. Legs brownish with paler patches on metafemora and paler rings on all tibiae, tarsi paler, parameres deformed in the examined specimen (Gorczyca, 1998b, Figs 5—6).

Distribution: Madagascar.

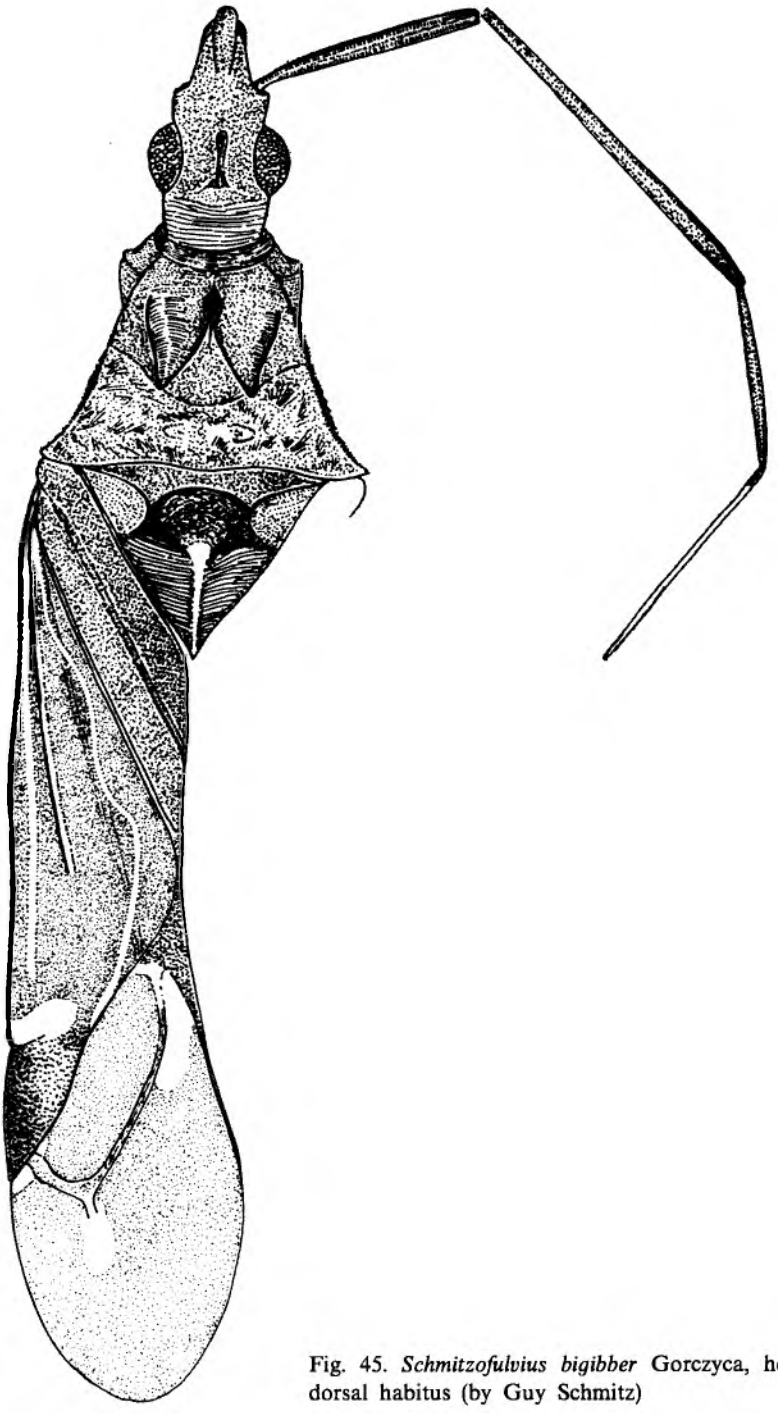


Fig. 45. *Schmitzofulvius bigibber* Gorczyca, holotype, dorsal habitus (by Guy Schmitz)

Schmitzofulvius niger Gorczyca

Schmitzofulvius niger Gorczyca, 1998c: 19
Smitzofulvius niger: Gorczyca, 1999b: 12

Type material

Holotype: Holotypus [pink label]; Yangambi, 1952, C. Donis, z. 1717; coll. R. Mayne, com. et. Bois Congo, r. 2421; coll. Mus. Congo, Don R. Mayne; *Fulvius evectus* sp. n. [handwritten], G. Schmitz det. 1970. In MRAC.

Diagnosis: It can be distinguished from the former species by dark brown, almost black body, cone-like calli projecting backward and by the shape of parameres.

Description: Male (female unknown). Body elongated, dark brown, almost black, length of the body 4.8 mm, width 1.32 mm. Head elongated, very dark, slightly paler before eyes. Length of head 0.90 mm in top view, 0.95 mm in side view, width 0.7 mm, diameter of eye 0.14 mm. Rostrum brown, first segment much shorter than the length of head. Length of rostral segments in mm: 0.48: 0.8: 1.0: 0.55. Antennae dark brown, inserted on distinct tubercles (Fig. 46). First segment thickened towards the apex, length of the segment 0.55 mm, second segment slightly darkened and thickened apically, covered with dense and short setae, the apex slightly paler, length 1.4 mm. Third and fourth segments dark and very thin, crushed in the examined specimen.

Pronotal collar and anterior lobe of pronotum dark brown, posterior lobe slightly paler, posterior margin concave. Calli dark brown, raised, projecting backward. Length of pronotum 0.8 mm, lateral margins 0.8 mm, posterior margin 1.3 mm. Mesoscutum and scutellum dark brown.

Hemelytra dark brown, clavus pale at apex, corium with pale patches contiguous with claval suture and pale patches above cuneus. Cuneus brown, thin. Membrane very dark, venation dark, not well visible in the examined specimen.

Underside of the body dark brown, shining, coxae dark brown, remaining parts of legs broken in the examined specimen. Parameres were deformed before my study (GORCZYCA, 1998c, Figs 12—13).

Distribution: Congo (Kinshasa).

Fig. 46. *Schmitzofulvius niger* Gorczyca, holotype, dorsal habitus (by Guy Schmitz)

Rhinomirini new tribe

Type genus: *Rhinomiris* Kirkaldy

Rhinomiridius Poppius

Type species: *Rhinomiridius aethiopicus* Poppius, 1909 (original designation)
Rhinomiridius Poppius, 1909: 2, 8
Rhinomiridius: Reuter, 1910: 155; Poppius, 1912: 171; Bergroth, 1920: 72; Girault, 1934: 1; Carvalho, 1952b: 48; Villiers, 1952: 194; Carvalho, 1955a: 19; Carvalho, 1957: 24; Odhiambo, 1967: 1556; Schmitz, 1970: 511; Carvalho, 1974: 43; Medler, 1980: 97; Schuh, 1995: 36; Cassis & Gross, 1995: 149; Gorczyca & Chérot, 1998: 25, 46, 47

Redescription: Similar to the genus *Rhinomiris*, body large, elongate: 4.6—9.5 mm (observed values), finely rugosae. Head oblique, shorter than in the genus *Rhinomiris*, eyes contiguous with pronotal collar, vestiture short. Vertex with a small sulcus in the middle. Antenna elongated, at least as long as the body (particularly in the small species, as *R. dentatus* sp. n.). Rostrum long, at least reaching the middle of abdomen. Colour pattern as in some *Rhinomiris* spp., with some clear patches, lacking long stripes and small calli on the hemelytra. False venation of the membrane obvious or not evident. Pygophore showing "various degrees of development of its processes" (ODHIAMBO, 1967).

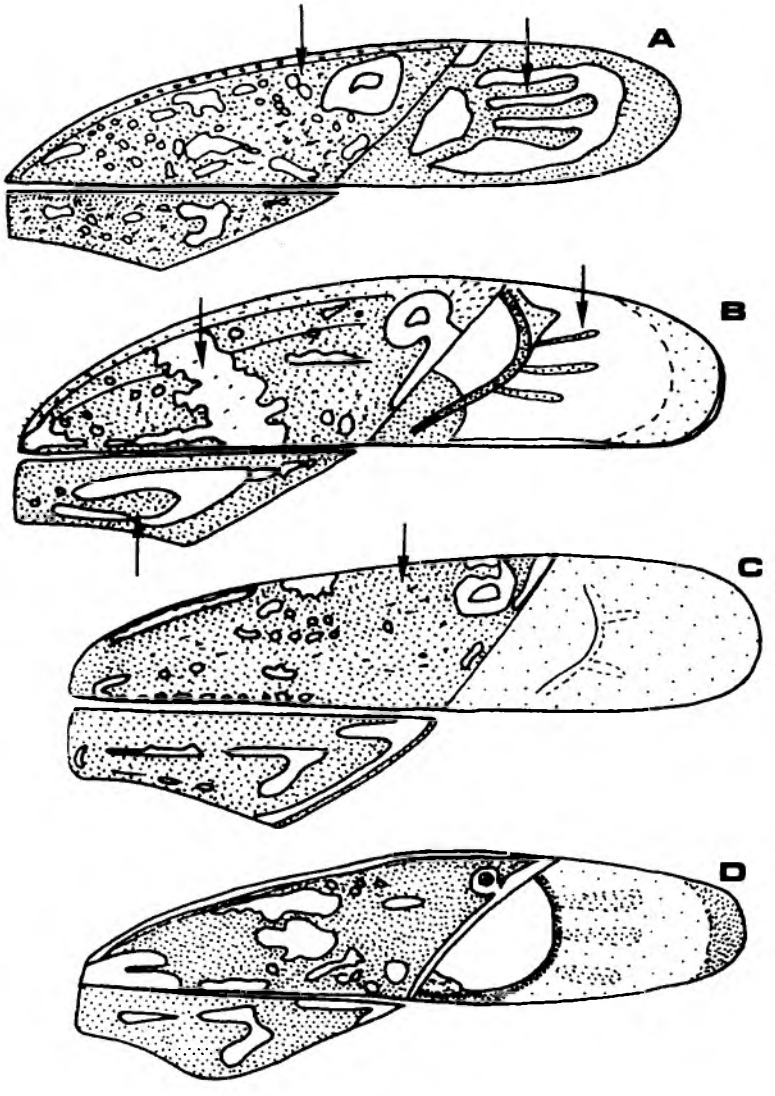
KEY TO THE SPECIES OF *RHINOMIRIDIUS*

Discrimination of the *Rhinomiridius* species is not easy. Since the complex hemelytral eunomy (Figs 47A—D) has interspecific variation it is not a good diagnostic character and was not used in the keys below.

KEY TO FEMALES
(FEMALE OF *R. DONISI* CHÉROT & GORCZYCA UNKNOWN)

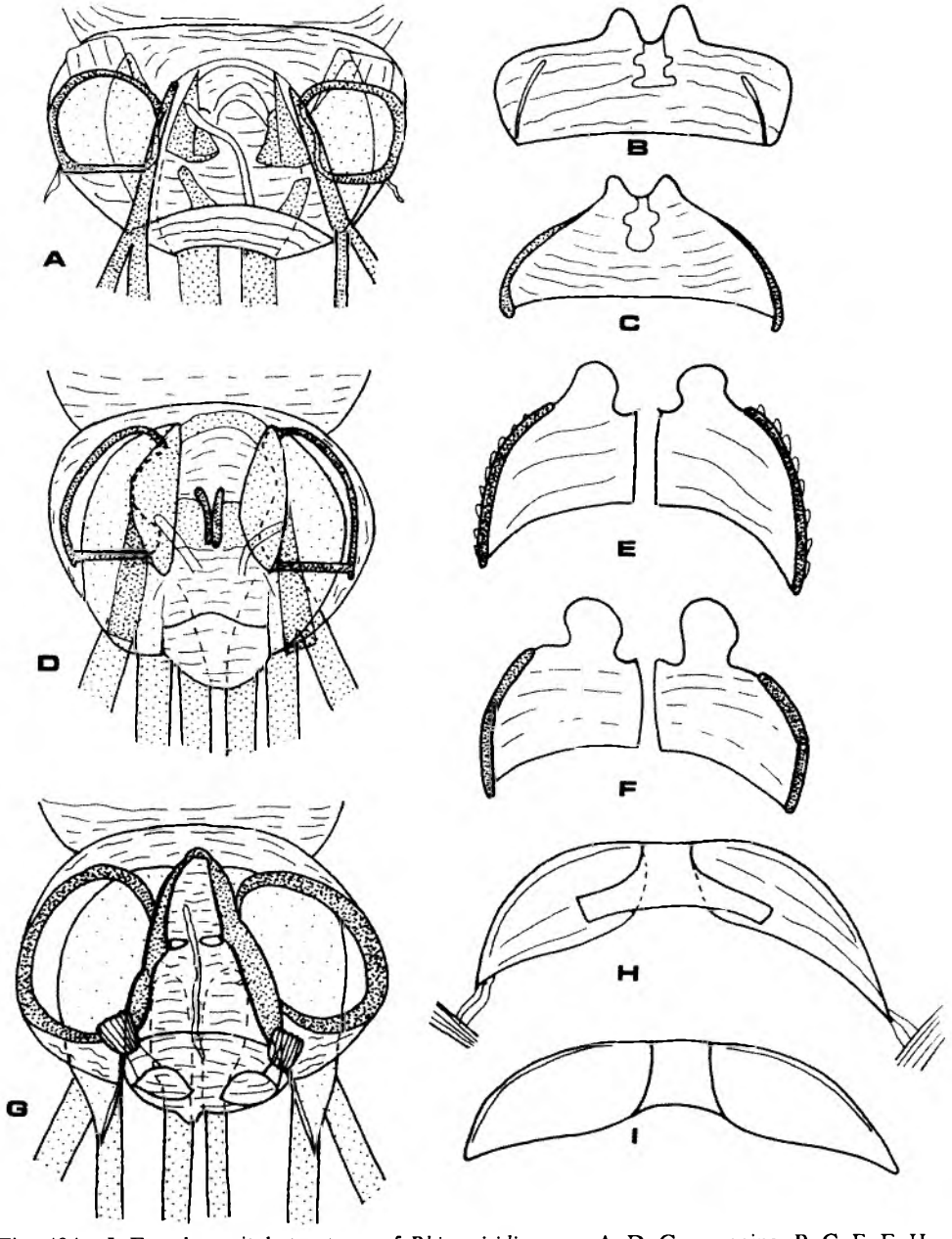
1. Outer margin of the ventral plate (Fig. 48D) slightly crenellated; obvious part, in dorsal view, of the parieto-vaginal rings making a quarter of circle, its posterior margin straight (Fig. 48D), posterior wall elementary (Figs 48E—F) ..... *ogoouensis* Odhiambo
— Outer margin of the ventral plate not crenellated. Parieto-vaginal rings different 2
2. Dorso-median plate (Fig. 48A) narrow, long, not obvious; subtriangular inner dorso-lateral plates distant; long triangular outer dorso-lateral plate;

in dorsal view, parieto-vaginal rings making a semicircle, posterior wall elementary (Figs 48B—C) ..... *aethiopicus* Poppius
Dorso-median plate (Fig. 48G) small but obvious; inner dorso-lateral plates close, long, with a lateral incurved prolongation; outer dorso-lateral plate not obvious, limited to a simple membrane; parieto-vaginal



Figs 47A—D. Hemelytra of *Rhinomiridius* spp., A — *Rh. ogoonensis* Odhiambo, B — *Rh. dentatus* Chérot & Gorczyca, C — *Rh. aethiopicus* Poppius, D — *Rh. donisi* Chérot & Gorczyca (by Frederic Chérot)

rings suboval, posterior wall very simple (Figs 48H—J) .....
..... *dentatus* Chérot & Gorczyca



Figs 48A—I. Female genital structures of *Rhinomiridius* spp., A, D, G — vagina, B, C, E, F, H, I — posterior wall; A, B, C — *Rh. aethiopicus* Poppius, D, E, F — *Rh. ogoonensis* Odhiambo, G, H, J — *Rh. dentatus* Chérot & Gorczyca (by Frederic Chérot)

KEY TO MALES

1. Right paramere with a pointed sensory lobe and a tertiary apophysis (GORCZYCA & CHÉROT, 1998, Fig. 41). Left paramere (GORCZYCA & CHÉROT, 1998, Fig. 40) deformed. Its outer lateral margin with two large lobes: a long tertiary lobe and a large secondary apophysis .... *ogoouensis* Odhiambo
— Right paramere not modified, slightly sickle-like. Left paramere different 2
2. Left paramere with a small stripe (GORCZYCA & CHÉROT, 1998, Fig. 38), its apical extremity hook-like. Outer lateral margin of the body with a single large secondary apophysis (GORCZYCA & CHÉROT, 1998, Figs 48, 52, 53). Penial sclerite very small (GORCZYCA & CHÉROT, 1998, Figs 54—56) ..... *aethiopicus* Poppius
— Left paramere without a small stripe. Outer lateral margin of the body with at least two small lobes. Presence of a complex penial sclerite (GORCZYCA & CHÉROT, 1998, Figs 66, 67, 74, 83) 3
3. Left paramere with three lobes (GORCZYCA & CHÉROT, 1998, Fig. 68), the posterior lobe anvil-like or bird-head-like. Arm of the right paramere with a tooth on its inner margin (GORCZYCA & CHÉROT, 1998, Figs 43, 44, 71, 73). Apical part of right paramere straight (GORCZYCA & CHÉROT, 1998, Fig. 44) ..... *dentatus* Chérot & Gorczyca
— Left paramere with two obvious lobes (GORCZYCA & CHÉROT, 1998, Fig. 45) separated by a deep concavity and with a third small anterior lobe. Posterior lobe not anvil-like or bird-head-like. Arm of the right paramere without a tooth on its inner margin but with a stripe (GORCZYCA & CHÉROT, 1998, Figs 46, 80, 81). Apical part of right paramere curved (GORCZYCA & CHÉROT, 1998, Fig. 47) ..... *donisi* Chérot & Gorczyca

Remarks. The redescriptions and descriptions of the species of *Rhinomiridius* have been published recently (GORCZYCA & CHÉROT, 1998), so I decided to omit them.

Rhinomiridius aethiopicus Poppius, 1909

Rhinomiridius aethiopicus Poppius, 1909: 8
Rhinomiridius aethiopicus: Carvalho, 1957: 24; Odhiambo, 1967: 1659; Schuh, 1995: 36

Type material examined

Lectotype (male): *Rhinomiridius aethiopicus* Poppius. Designation Gorczyca & Chérot, 1998. Lectotype [half handwritten, not original]; Holotype [half handwritten, not original, probably by Odhiambo]; *R. aethiopicus* n. g. et sp. B. Poppius det.

[handwritten, original]; Museum Paris. Fernando-Po. L. Conradt 1901. Paralectotype: *Rhinomiridius aethiopicus* Poppius; *R. aethiopicus* sp. n, g. n. det. B. Poppius (handwritten, by Schmitz); Paratype [typed, not original, probably added by Odhiambo]; Museum Paris. Fernando-Po. L. Conradt 1901 (MNHN); Museum Paris, Fernando-Po, L. Conradt, 1901; *Rh. aethiopicus* n. gen., n. sp. [handwritten], B. Poppius det.; Mus. Zool. H:Fors, Spec. Typ. N° 10009, *R. aethiopicus* Popp.; Mus. Zool. Helsinki, N° 18151; Mus. Zool. Helsinki N 3822; Paratypus [pink label]; Paralectotype: *Rhinomiridius aethiopicus* Poppius. (MZHF).

Other material examined

Four specimens: Musée du Congo. Eala. Vii.1935. J. Ghesquière; *Rhinomiris Rhinomiridius aethiopicus* Poppius K G. Schmitz, 1968 [two specimens without Schmitz's label but with "Parallotypus"]; one specimen: Musée du Congo. Mayumbe: Vonde. 06.i.1924. A. Collart; Eleven specimens: Coll. Musée du Congo. Don R. Mayné; Coll. R. Mayné Com.ét. Bois Congo. R. 2500 [half handwritten, with numbers 2453 to 2500] ; Yangambi 1953 [or 1954] C. Donis Z. A. 1094 [all from Congo] (MRAC); male: Tanzania, East Usambara, Amani, 1000m, 28. i. 1977; Zool. Mus., Copenhagen, H. Enghoff, O. Lomholdt, O. Martin leg; nr. *Rhinocylapidius* [handwritten], det. by G. M. Stonedahl, 19. Housed in ZMC.

Distribution: Cameroon (N. and S.E.), Congo (Kinshasa), Congo (Brazzaville), Guinea Equatoria: Bioco, Tanzania: Usambara.

Rhinomiridius ogoouensis Odhiambo, 1967

Rhinomiridius ogoouensis Odhiambo, 1967: 1659
Rhinomiris (Rhinomiridius) ogoouensis: Schmitz, 1970: 511
Rhinomiridius ogoouensis: Schuh, 1995: 36

Type material

Holotype: 6712—181 [handwritten by Schmitz]; *Rhinomiridius ogoouensis* sp. n. Th. R. Odhiambo, 1962 [original, handwritten by Odhiambo]; Holotype; Museum Paris. Ogooué. Lambarn. R. Ellenberégeré, 1911. Paratypes: pr 6712—211 [handwritten by Schmitz], idem holotype but indicated as allotype; and three specimens same labels that the holotype but indicated as "paratype" (MNHN).

Other material examined

Nine specimens: (males) *Rhinomiris (Rhinomiridius) ogoouensis* Odhiambo G. Schmitz det. 1968 [handwritten, on specimen n° 816]; Coll. Mus. Congo. Don R. Mayné; Coll. R. Mayn. Com. t. Bois Congo R. 2421 [half handwritten, some codes from 2421 to 2491]; Yangambi, 1952 [to 1954] C. Donis Z. 1735 [half handwritten, some codes from A 416 to Z 1715]; two males: *Rhinomiris (Rhinomiridius) ogoouensis* Odhiambo, G. Schmitz det. 1968; Musée du Congo. Lulua: Kapanga XII.1932 F. G. Overlaet; two specimens: Coll. Musée du Congo. Tsuapa: Bokuma 1953

R. P. Lootens [the other Coll. Mus. Tervuren. Tshuapa: Bamanya. V.1963. Rév. P. Hulstaert]; one specimen: Coll. Mus. Congo. Don R. Mayné; Coll. R. Mayn. Com. ét. Bois Congo R. 2379; Luki, 1951 P. Henrard P.H. 20a; one female: Musée du Congo Eala IX.1935 J. Ghesquière; one specimen: *Rhinomiris* (*Rhinomiridius*) *ogoouensis* Odhiambo, G. Schmitz det, 1968; Musée du Congo. Mayumbe: Zobe 04—12.I.1916. R. Mayné [all from Congo]; four females: *Rhinomiris* (*Rhinomiridius*) *ogoouensis* Odhiambo, G. Schmitz det. 1968; Coll. Mus. Tervuren, Cameroun: Nkolbisson Dept., Nyong-Sanaga IX.1963 L. G. Segers; one female: *Rhinomiris* (*Rhinomiridius*) *aethiopicus* Poppius G. Schmitz det. 1968; Coll. Mus. Tervuren Oubanghi-Chari. Fort Sibu, 1968. ex. Coll. Breunig; 19 specimens: Tafo. Ghana. [datum: 28.X.1961 (1ex.), 04.X.1965 (2 ex.), 06.III.1966 (3ex.), 01.IV.1966 (1ex.), 31.VII.1966 (1ex.), 04.VIII.1967 (1ex.), 23.IX.1967 (2ex.), 26-28.IX.1967 (6ex.), 17.X.1967 (1ex.), 22.I.1968 (1ex.)]; on the back of tree [or Tree trunk or U.V. Trap], (MRAC).

Distribution: Cameroon, Congo (Kinshasa), Congo (Brazzaville), Gabon (Ogooué), Ghana.

Rhinomiridius dentatus Chérot & Gorczyca

Rhinomiridius dentatus Gorczyca & Chérot, 1998: 54

Type material examined

Holotype (male): *Rhinomiridius dentatus* sp. n. det. F. Chérot & J. Gorczyca, 1997; *Rhinomiris* (*Rhinomiridius*) *dentatus* sp. n. Det. G. Schmitz, 1968 [handwritten by Schmitz]; Holotype; Coll. Mus. Congo. Don R. Mayné; Coll. R. Mayné. Com. ét. Bois Congo R. 2491; Yangambi, 1953. C. Donis Z.A. 940; Ten paratypes: Paratype *Rhinomiridius dentatus* sp. n., det. F. Chérot & J. Gorczyca, 1997, *Rhinomiris* (*Rhinomiridius*) *dentatus* sp. n. Det. G. Schmitz, 1968 [handwritten by Schmitz]; Paratype (male): Coll. Mus. Congo. Don R. Mayné; Coll. R. Mayné. Com. ét. Bois Congo R. 2491; Yangambi, 1953. C. Donis Z.A. 981 [codes from A 410 to A 1013 and year 1952 or 1953] [two specimens Yangambi (Stanleyville). XI.1959. J. Decelle]; two specimens: Paratype *Rhinomiridius dentatus* sp. n., det. F. Chérot & J. Gorczyca, 1997; *Rhinomiris* (*Rhinomiridius*) *dentatus* sp. n. Det. G. Schmitz, 1968 [handwritten by Schmitz]; Paratype (female): Musée du Congo. Haut-Uélé: Moto. 1923. L. Burgeon; one specimen: Paratype *Rhinomiridius dentatus* sp. n., det. F. Chérot & J. Gorczyca, 1997; *Rhinomiris* (*Rhinomiridius*) *dentatus* sp. n. Det. G. Schmitz, 1968 [handwritten by Schmitz]; Paratype, female; Musée du Congo. Kasai: Makumbi. 19.X.1921. Dr. H. Schouteden [all from Congo]; two paratypes *Rhinomiridius dentatus* n. sp., Det. F. Chérot & J. Gorczyca, 1997, *Rhinomiris* (*Rhinomiridius*) *dentatus* sp. n. Det. G. Schmitz, 1968 [handwritten by Schmitz and by Linnavuori], Sudan. Equatoria. Lotti Forest. 14—17/03/1963 Linnavuori (MRAC); one specimen: paratype *Rhinomiris dentatus* sp. n., det. F. Chérot & J. Gorczyca, 1997, Sudan, Equatoria, Lotti Forest (ZIN); nine specimens: Paratype *Rhinomiridius dentatus* sp. n., det. F. Chérot & J. Gorczyca, 1997; Sudan. Equatoria. Lotti forest. 14—17.III.1963. Linnavuori; (LC).

Distribution: Congo (Kinshasa), Sudan.

Rhinomiridius donisi Chérot & Gorczyca

Rhinomiridius donisi Gorczyca & Chérot, 1998: 56

Type material examined

Holotype: *Rhinomiridius donisi* sp. n., det. F. Chérot & J. Gorczyca; *Rhinomiris (Rhinomiridius) donisi* sp. n. G. Schmitz, det. 1968 [handwritten by Schmitz]; Holotype. Coll. Mus. Congo. Don R. Mayné; Coll. Mus. Congo. Don R. Mayné; Coll. R. Mayné. Com. ét. Bois Congo R. 2499; Yangambi, 1952. C. Donis Z.A. 998. (MRAC); Paratype: Paratype *Rhinomiridius donisi* sp. n. det. F. Chérot & J. Gorczyca; *Rhinomiris (Rhinomiridius) donisi* sp. n. G. Schmitz, det. 1968; Paratype Coll. Mus. Congo. Don R. Mayné [handwritten by Schmitz]; Coll. R. Mayné. Com. ét. Bois Congo R. 2491; Yangambi, 1952. C. Donis Z.A. 933 (MRAC).

Distribution: Congo (Kinshasa).

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Les études systématiques de la sous-famille Cylapinae avec la révision des espèces de la Région Afrotropicale (Hemiptera, Miridae)

Résumé

L'ouvrage se compose de deux parties. Dans la première on a proposé la nouvelle division systématique dans la sous-famille Cylapinae. En basant sur l'analyse cladistique on a distingué dans la sous-famille 4 tribus: Bothriomirini, Cylapini, Fulviini et une nouvelle tribu — Rhinomirini. La tribu Cylapini est divisée en deux sous-tribu: Cylapina — présente dans la région de Néotropique, et une nouvelle sous-tribu Phylocylapina, connue des quelques localités relictes dans le territoire Indo-Pacifique.

On a présenté l'histoire des recherches concernantes les Hemipterès de la sous-famille Cylapinae, les liaisons phylogénétiques des Cylapinae avec d'autres sous-familles de Miridae, l'état de connaissance du groupe et sa distribution. On a analysé aussi toutes les informations des matériaux fossiles des Cylapinae. Cette partie contient également la revue de toutes les tribus, la liste des genres de Cylapinae du monde avec leur distribution ainsi que les clefs des tribus, sous-tribus et des groupes de genres: *Rhinocylapus* Poppius et *Rhinomiris* Poppius.

La deuxième partie du travail, constituant la revision du sous-groupe Cylapinae de la Région Afrotropicale, contient les redescriptions des genres et des espèces connues, faites à la base des analyses des matériaux typique et des autres spécimens. En basant sur les matériaux assemblés dans les collections des institutions scientifiques citées on a décrit 3 genres nouveaux et 30 espèces nouvelles, une sous-espèce y comprise. On a présenté les clefs de l'identification des genres de Cylapinae de la Région Afrotropicale et les clefs de l'identification des espèces des genres les plus nombreux: *Fulvius* Stål, *Hemiophthalmocoris* Poppius et *Peritropis* Uhler. On a designé les lectotypes pour les espèces: *Fulvius anthocoroides* (Reuter), *Fulvius discifer* Reuter, *Cylapomorpha migratoria* (Distant) et *Rhinofulvius albifrons* (Reuter).

Jacek Gorczyca

Systematyczne studia podrodziny Cylapinae wraz z rewizją Regionu Afrotropikalnego (Heteroptera, Miridae)

Streszczenie

Praca składa się z dwóch zasadniczych części, w pierwszej zaproponowano nowy podział systematyczny w obrębie podrodziny Cylapinae. Na podstawie analizy kladystycznej wyróżniono w obrębie podrodziny 4 plemiona: Bothriomirini, Cylapini, Fulviini oraz nowe plemię Rhinomirini. Plemię Cylapini podzielono na dwa podplemiona: Cylapina, występujące w neotropiku, oraz nowe podplemię Phylocylapina, znane z kilku reliktowych stanowisk na obszarze Indo-Pacyfiku.

Przedstawiono historię badań nad pluskwiakami z podrodziny Cylapinae, powiązania filogenetyczne Cylapinae z pozostałymi podrodzinami w obrębie rodziny Miridae oraz aktualny stan poznania grupy i jej rozmieszczenie. Przeanalizowano również dotychczasowe informacje o materiałach kopalnych z omawianej podrodziny. Zamieszczono przegląd wszystkich plemion, wykaz światowych rodzajów z podrodziny Cylapinae z uwzględnieniem ich rozmieszczenia oraz klucze do plemion, podplemion i grup rodzajów *Rhinocylapus* Poppius i *Rhinomiris* Poppius.

W drugiej części pracy stanowiącej rewizję podrodziny Cylapinae z Regionu Afrotropikalnego zamieszczono, oparte na analizie materiału typowego oraz innych dostępnych okazów, redeskrypcje wszystkich znanych rodzajów i gatunków. Na podstawie materiałów zgromadzonych w wymienionych instytucjach naukowych opisano trzy nowe rodzaje oraz 30 nowych gatunków, w tym jeden podgatunek. Przedstawiono klucze do poszczególnych rodzajów Cylapinae Regionu Afrotropikalnego oraz klucze do oznaczania gatunków z najliczniejszych rodzajów, a mianowicie *Fulvius* Stål, *Hemiophthalmocoris* Poppius oraz *Peritropis* Uhler. Wyznaczono lektotypy dla: *Fulvius anthocoroides* (Reuter), *Fulvius discifer* Reuter, *Cylapomorpha migratoria* (Distant) oraz *Rhinofulvius albifrons* (Reuter).

Jacek Gorczyca

A systematic study on Cylapinae with a revision of the Afrotropical Region (Heteroptera, Miridae)

Wykaz ważniejszych błędów dostrzeżonych w druku

Strona	Wiersz od dołu	Jest	Powinno być
34	8	as males in some species.	as males.
34	9	*Rhinocylapidius* vittatus	*Rhinocylapidius vittatus*

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